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United States  
Department of  
Agriculture

Forest Service

Pacific  
Northwest  
Region

November 1988



# Managing Competing and Unwanted Vegetation

Final Environmental Impact Statement

## Appendix I/B Public Participation and Consultation



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# Appendix I/B

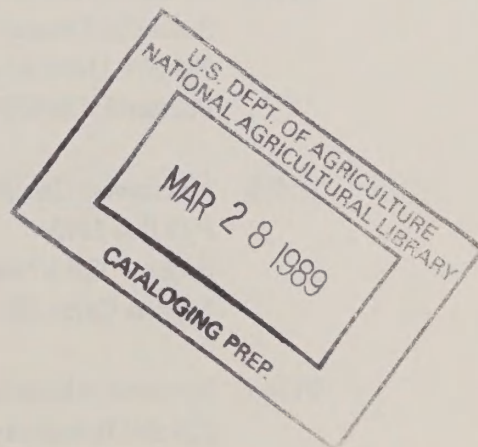
## SECTION II

# Selected Response Letters

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This section contains letters we received in response to the Draft Environmental Impact Statement. The volume of letters would not allow us to print all of them. All letters were read, coded, and entered into our data base. These letters were selected to publish because they represent the full spectrum of thought and opinion which people forwarded to us during the public review and comment period.

NEPA requires publication of responses from government agencies and officials. Those letters follow the section of individual letters.



## List of Individual Letters

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- 01304 Wendell R. Mullison, Herbicide Consultant  
1412 N. Parkway  
Midland, MI 48640
- 01484 Monsanto  
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St. Louis, MO 63167
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Kevin Thorpe, Staff Entomologist
- 01409 National Wildlife Federation  
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- 01013 Northwest Coalition for Alternatives to Pesticides  
P O Box 1393  
Eugene, OR 97440  
Norma Grier, Director, and Mary H. O'Brien
- 01386 Northwest Forestry Association  
225 SW Broadway, Room 400  
Portland, OR 97205  
James C. Geisinger, President

- 01246 Oregon Environmental Council  
2637 SW Water Avenue  
Portland, OR 97201  
John A. Charles, Executive Director
- 01302 Oregonians for Food and Shelter  
567 Union Street, NE  
Salem, OR 97301  
Terry L. Witt, Executive Director
- 00702 Debbie L. Pickering  
2499 N. North Bank Road  
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- 01470 Residents of Oregon Against Deadly Sprays  
P O Box 1101  
Eugene, OR 97440  
Jan Wroncy, Spokesperson
- 00750 Roseburg Area Chamber of Commerce  
P O Box 1026  
Roseburg, OR 97470  
Neal Walker, President
- 01126 Roseburg Resources Co.  
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Roseburg, OR 97470  
Leonard Gondek, Chief Forester
- 01192 William S. Seaman, Forestry Specialist  
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Walker's Mill, Barley Mill Plaza  
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- 01084 Sierra Club, Oregon Chapter  
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## I/B Public Participation and Consultation

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Corvallis, OR 97331
- 01311 Southern Oregon Northwest Coalition for Alternatives to Pesticides  
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Grants Pass, OR 97526  
Louise Racataian, SONCAP Volunteer Coordinator
- 01436 Southern Oregon Timber Industries Association  
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Medford, OR 97501  
Roxi K. Smith, Staff Forester
- 00850 E.M. Sterling  
1213 E. Shelby #6  
Seattle, WA 98102
- 00876 Sunny Thompson  
Star Route  
Ashfrod, WA 98304
- 01010 Trout Unlimited of Oregon  
P O Box 6225  
Bend, OR 97708  
Eric E. Schulz, Chairman Oregon Council
- 01415 Kindler Stout  
130 Orange  
Ashland, OR 97520
- 00908 Frank Vaughn  
936 N. 7th  
Lakeview, OR 97630
- 01434 Washington Forest Protection Association  
711 Capitol Way, Evergreen Plaza Bg., Suite 608  
Olympia, WA 98501  
Stewart Bledsoe, Executive Director



- 01315 Washington Friends of Farms and Forests  
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Duncan C. Wurm, Executive Director
- 01307 Washington Wilderness Coalition  
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Portland, OR 97205  
Ralph Saperstein, Vice President, Forest Policy
- 01306 Western Washington Toxics Coalition  
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Karen Murphy, Director
- 01006 Western Wood Products Association  
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- 01444 Weyerhaeuser  
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- 01061 The Wildlife Society, Oregon Chapter  
Oregon State University  
Department of Fisheries and Wildlife, Nash 104  
Corvallis, OR 97331-3803  
John A. Crawford, President





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Herbicide Consultant

1412 N. Parkway, Midland, MI 48640, (517) 636-1166

February 9, 1988

Mr. James Torrence, Regional Forester  
Forest Service, USDA  
P. O. Box 3623  
Portland, OR 97208

Dear Mr. Torrence:

This letter is to comment upon the U. S. Forest Service's Draft Environmental Impact Statement for the Pacific Northwest Region entitled "Managing Competing and Unwanted Vegetation". This statement certainly shows that the Forest Service has spent a great deal of time and effort in putting it together.

However, I am critical of two major aspects of this report. First, it thoroughly discusses the risks of using herbicides and, in so doing, it gives the clear impression to an unknowing layman that there are many serious risks associated with the use of herbicides. Further, the herbicidal risks are often discussed vaguely, giving rise to further concerns of an already fearful public. In contrast, non-herbicide methods are discussed in such a way that it suggests that if the use of herbicides were stopped, serious health risks to man, wildlife and the environment would be eliminated. This is rather ironic because as you well know, the use of herbicides is the best and safest method of controlling unwanted plants in a forest.

The uneven treatment of risks may be illustrated by the discussion of the cancer hazard. One of the few chemicals that is a known human carcinogen is benzene, which is present in gasoline. Thus, exposure to gasoline presents a very real cancer hazard as far as exposure to a known carcinogen goes. No mention of this risk is made in all "alternatives" involving manual operations using chain saws.

One of the most widely used herbicides today is still 2,4-D, and this has never been officially classified as a human carcinogen. I know this is a controversial subject, particularly with the public, and some unnamed people in EPA have proposed that 2,4-D be classified in Group B1, meaning it is a probable human carcinogen, based on limited epidemiological evidence.

It should be noted, however, that EPA's Scientific Advisory Panel (SAP) carefully reviewed 2,4-D at their June 25, 1986, meeting. SAP recommended that 2,4-D be classed in Group D, which means the evidence is inadequate and/or equivocal to classify the substance as being carcinogenic. SAP also concluded that the evidence was equivocal for 2,4-D being an animal carcinogen. The SAP conclusion is in accord with the classification of 2,4-D by IARC, the International Agency for Research on Cancer, who put 2,4-D in their Group 3, which means 2,4-D cannot be classified as to its carcinogenicity in humans. Thus, I think it is inaccurate to say 2,4-D is a human carcinogen. Indeed, it would

Mr. James Torrence

February 9, 1988

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be reasonable to say that there is less risk of causing harm to humans from the use of 2,4-D than the use of chain saws, with the unavoidable handling of gasoline, not to mention the possibility of injury caused by a chain saw accident.

Another example is comparing possible contamination of surface waters. Airplane spraying of a herbicide contaminates surface waters far less than fecal or urinary contamination by crews of human workers for example in clear cutting operations, or the selective cutting of weed trees and brush, or the same type of contamination by cattle or goats which have sometimes been proposed for use for biological control of weeds and brush. There is also no discussion of other health problems to workmen and the public, such as dermatitis from poison oak and poison ivy, or hay fever which are avoided or minimized in herbicide application by aircraft.

I find it difficult to critique your document, because original references are not cited or so poorly that they cannot be located. For instance, Section IV-112 of your document says "2,4-D has a moderate cancer risk (LOEL HERP of 0.01)" but details for the reference are not given. Also, the appendices document in Section 3, page 9, at the end of the second paragraph on 2,4-D, says "---, EPA has established a provisional ADI of 0.01 mg/kg/day." I cannot say these quotes are incorrect because I could not find the references. However, I can point out that the World Health Organization established an acceptable daily intake of 0.3 mg/kg/day of 2,4-D for humans (1971 Evaluations of Some Pesticide Residues in Food, WHO Pesticide Residues Series No. 1, 1972). For such an important point, at least both references should have been cited.

Regarding the cancer statement, I have already pointed out that scientists from two official bodies do not consider 2,4-D as classifiable as a carcinogen for man. It is also worth noting that EPA on March 31, 1987, published a Lifetime Health Advisory (HA) of 70 parts per billion for 2,4-D in drinking water (0.07 mg/L/day). Incidentally, in discussing Health Advisories, EPA says they do not give lifetime health advisories for human carcinogens. Probably the HA was not published at the time your document was written. None the less, an official tolerance of 0.1 part per million in potable water was and is in operation. Thus, I think your 2,4-D information is quite incomplete and, as a result, is prejudiced.

At the risk of seeming vain, I am enclosing several articles on 2,4-D which I wrote. Hopefully your technical staff will agree with me after reading them, and come to the conclusion that 2,4-D is an extremely safe herbicide to use. If I am wrong in this conclusion, I would appreciate their pointing out where I am mistaken, as I try to have an open mind on all scientific subjects including this one.

Sincerely,

*Wendell R. Mullison*

Wendell R. Mullison

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Enclosures: 1) Some comments on the Kansas Farm Worker Epidemiological Study, 2) Human Exposure to 2,4-D, 3) An Interim Report..., 4) Public Concerns About the Herbicide 2,4-D.

001484

# Monsanto

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**MONSANTO AGRICULTURAL COMPANY**

800 N. Lindbergh Boulevard  
St. Louis, Missouri 63167  
Phone: (314) 694-1000

February 11, 1988

Mr. Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, Oregon 97208

Dear Mr. Larsen:

Monsanto Agricultural Company is pleased to provide comments on the document entitled "Managing Competing and Unwanted Vegetation, Draft Environmental Impact Statement". Monsanto manufactures and markets the chemical ingredient glyphosate and its various formulations. The formulations utilized by the United States Forest Service, Roundup Herbicide, Rodeo Herbicide, Accord Herbicide, and Accord CR Herbicide, all contain glyphosate, whose toxicological and environmental properties, as well as its environmental impact, are discussed in this document.

As you are aware, Monsanto has played an extremely active role in attempting to get this Environmental Impact Statement (EIS) written, released, reviewed, and finalized. We have worked diligently to get clarifying worst case analysis regulations issued so that the Forest Service would have a clearer definition of what the National Environmental Policy Act specifies regarding this requirement. We have contacted members of your staff and offered any and all assistance requested. We participated in the industry scoping session held in mid 1986. We have provided the Forest Service information on inert ingredients in our formulations, as well as other data necessary to address issues that are of public but not regulatory concern. We have offered to meet directly with the leadership of the environmental community in the Pacific Northwest to discuss issues relevant to our products although our offer has not been accepted. In short we have worked hard to resolve the issues which have surrounded this document. It is our sincere hope that the following comments will lead to a better final document, a selection of an alternative that fairly represents the proper position and role of herbicides in vegetation management control, and the ultimate resolution of the issue of herbicide use on public lands in the Pacific Northwest.

As a number of issues have been raised by the public regarding the glyphosate data base, it is important that the latest published and publicly available data on these issues also be made available to you for your information and use. Our toxicological staff has reviewed the appropriate chapters of this EIS and have provided their comments and suggestions in Attachment A which is enclosed.



Mr. Gary Larsen  
February 11, 1988  
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Glyphosate has been reregistered by the Environmental Protection Agency and a registration standard issued in August of 1986. In the document, the Agency has addressed all of the toxicological issues existing with glyphosate. The issue of Industrial Biotesting Laboratories, Inc. (IBT) is addressed and finally answered by the fact that the agency clearly states that their review of toxicological data for this compound is based solely on non-IBT and IBT - repeat animal studies. This issue, along with the issue of whether we have gone through the reregistration process is resolved by this registration standard which is readily available to anyone.

The issue of carcinogenicity of glyphosate is raised in the EIS. It is also important that the latest information on this issue is known by the Forest Service and the public. The Agency has recently published in the Federal Register (September 16, 1987) information stating that glyphosate is considered a class D oncogen. Class D is a "not classified" category and indicates that there is "inadequate evidence" in laboratory animals of oncogenicity. In addition, in early 1987, the World Health Organization reviewed this issue and the available studies and concluded there was no evidence of carcinogenicity. This conclusion is also shared by regulatory and registration authorities in every one of the states and countries where glyphosate is registered. This totals all 50 states and better than 100 countries worldwide. Glyphosate is simply not oncogenic.

The Forest Service document indicates no information is available on the potential for glyphosate to be a neurotoxin. This is simply not true. No information exists in the EPA files requested by the Forest Service because such data are only required by the Agency for pesticides that are organophosphates or carbamates. Glyphosate is neither (this is confirmed in the Registration Standard). However, we have run a series of such tests even though the Agency has never requested them. They have all proven that glyphosate is not neurotoxic. We have provided the studies and the respective results for your review in Attachment B.

In regard to immunotoxicity data, as you are aware no such testing is required by EPA. Indeed there is some question as to whether a standard test exists for such a concern. We are aware of several prominent authorities on this issue, and with regard to glyphosate, they have expressed opinions indicating they do not consider this chemical to be immunotoxic.

In regard to inert ingredients, we have previously provided the Forest Service the requested information and indicated that it need not be treated as confidential. Glyphosate formulations are water based; the only "inerts" are a surfactant. Indeed two of the formulations, Rodeo Herbicide and Accord Herbicide, contain no surfactant. They are simply a formulation of glyphosate and water. The chemistry of the surfactant in the other two formulations of interest has been supplied to you along with available toxicity and environmental fate data. Finally, the EPA has indicated that this surfactant is neither on inert list 1 or 2, the two lists EPA has indicated contain the inerts of certain or potential toxicological concern.

Mr. Gary Larsen  
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Page 3

In regard to product contaminants, only one has ever been found in technical grade glyphosate (none has ever been detected in any of the formulations). This contaminant, N-nitrosoglyphosate has been found to exist in technical grade glyphosate levels well below 1 ppm, the level at which EPA requires testing. Thus no such toxicological testing is required for this contaminant. However, Monsanto has completed a series of toxicity tests on this contaminant; the list and results of such tests are enclosed for your review in Attachment C. As you will see, this contaminant has been shown to be negative for all tests measuring carcinogenic potential and in a full array of mutagenicity tests.

In regard to eye irritation, the surfactant in Roundup Herbicide and Accord CR Herbicide has been shown to be an eye irritant. At the levels that exist in these formulations when undiluted, goggles are recommended. In the diluted form (usually 50/1), the eye irritation value is reduced to a point where no effects should occur. In regard to skin irritation, several non-medically confirmed reports exist stating Roundup and glyphosate are skin irritants. A recently published study by Maibach summarizes the results of skin patch tests done with 0.1ml of undiluted Roundup on approximately 350 human volunteers. The author concludes that Roundup is essentially non-irritating to the skin. A copy of this study is also enclosed in Attachment D.

In regard to the quantitative risk assessment, we believe that this worst case analysis approach which purposely overestimates exposures and considers toxicological properties in the most conservative sense, clearly show risks to the general public to be insignificant, regardless of what scientific measure is utilized. This conclusion is supported by similar risk assessments done by other regions of the Forest Service and the Bureau of Land Management. The concerns of the general public regarding involuntary exposure are simply not supported by the scientific facts regarding this question.

The qualitative risk assessment is quite simply voodoo science. The official explanation for the inclusion of this form of toxicological review is to somehow attempt to include the issues of uncertainty and public perceptions in assessment of toxicological data. A group of individuals somehow came up with a set of arbitrary criteria to establish the level of scientific certainty of laboratory animal testing data. We have no way of knowing what data was reviewed (as no study listing is provided), nor are there any reasons given to support the assessments. Were the review conclusions unanimous and if not why? The qualitative assessment reaches conclusions that totally contradict the scientifically based quantitative assessment. What is the Forest Service, and more importantly, the qualitative assessment panel member's explanation for this difference. We have had a number of individuals familiar with risk assessment review this portion of the EIS and without exception their conclusion is that whatever this assessment is supposed to represent, its conclusions are not only misleading but fly in the face of sound science and fact. This type of assessment has no place in an EIS, and should be removed in its entirety. Opinions based on fear, innuendo, and misconception have no place in an EIS especially when the reader is asked to accept them as fact.

# I/B Public Participation and Consultation

Mr. Gary Larsen  
February 11, 1988  
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The inclusion of this qualitative assessment ruins an otherwise excellent technical document. We have previously stated to you, your staff and many others our belief that, despite the well intended but misguided decision to include the qualitative risk assessment, the Forest Service has produced what we consider the most complete EIS to date on the broad issue of controlling unwanted vegetation on public lands.

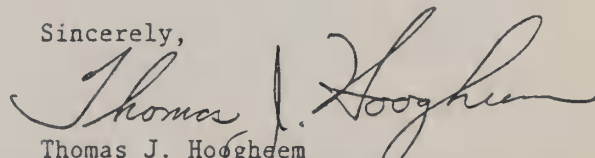
The U. S. Congress has legislated that federal lands must be managed for multiple uses. The EIS addresses how best to manage federal lands in order to carry out this multiple use policy. It is not intended to address whether federal lands should be managed.

Once it is accepted that Congress has mandated that federal lands must be managed, the question becomes how they should be managed. Alternatives D and E to the EIS express the policy that herbicides present greater risk to the environment and human health than do other tools to manage the land. The data summarized in the EIS show (on pages 20 and 21) that the risks associated with herbicides are essentially equal to other available methods for control of vegetation. Thus, the EIS does not support alternatives D and E, which favor other methods of vegetation control over herbicides.

Monsanto believes preferred Alternative B is the best policy. It allows the Forest Service to choose the appropriate tool for the specific situation with specific safe guards in place to protect human health and the environment regardless of whether herbicides or some other tool is chosen to manage unwanted vegetation. We believe that with the requirements in place as provided for in Alternatigve B, and with equal availability and treatment of all vegetation management tools, the public will be both protected and well served.

We appreciate the opportunity to comment on this document and hope for the earliest possible publication of a final EIS as well as a favorable record of decision regarding the proper use of herbicides.

Sincerely,

  
Thomas J. Hoogheem  
Manager, Governmental Affairs

TJH:rk  
Enclosure



ATTACHMENT A  
COMMENTS ON USFS EIS

Appendix D, Section 1

1.Pg.9a, Table 1-2: For glyphosate, this table lists data gaps for acute, subchronic, and chronic toxicity and cites as a reference a 1985 draft chapter for the glyphosate registration standard. If one were to refer to the final standard released in 1986 and look at Table A "Generic data requirements for glyphosate" it is clear that these statements are not totally accurate. In the acute area, the EPA requested an acute inhalation study with technical glyphosate. Monsanto has requested a waiver of this requirement based on the fact that neither farmers or factory employees of Monsanto are exposed to this material. Inhalation data for the formulated product Roundup herbicide is already available. In the subchronic toxicity section, the table clearly shows that there are no requirements for further data. In the chronic toxicity area, the only requirement was for some additional data on the one year chronic dog study. This additional data has been submitted to the Agency and has been reviewed. Based upon that review, the EPA has upgraded the study to core guideline and has revised the NOEL upward from 25mg/kg/day to 500 mg/kg/day, the highest dosage tested. We have attached a copy of the EPA review of our submission which substantiates these statements. Finally, the general metabolism study listed as a data gap is currently being repeated and will be submitted to the EPA sometime in 1988. Based upon these comments, Table 1-2 of the EIS should be either revised or explained in greater detail to avoid being misleading.

2.Pg. 7c, Table 3-2: The lowest reproductive or teratogenic NOEL for glyphosate is listed as 10 mg/kg/day based upon the 3-generation reproduction study. The reproductive NOEL for this study was 30 mg/kg/day, the highest dosage tested. This is clearly stated on page 11 of the EIS which says "no effects on fertility or reproductive parameters were noted." The ADI set by the EPA based upon this study uses a NOEL of 10 mg/kg/day for systemic toxicity. Dilatation of the renal pelvis was observed in a few of the F3b male pups at the high dosage level of 30 mg/kg/day. Thus, it should be clear that for the purposes of this table, the reproductive/teratogenic NOEL should be listed as 30 mg/kg/day. This error is made repeatedly throughout the EIS document, including many of the tables and many of the calculations of margins of safety. These errors definitely need to be corrected throughout the document.

3.Pg.14a, Table 3-3: This table is missing the headings for the names of the herbicides. Therefore, it was impossible to

evaluate the accuracy of the mutagenicity data listed for glyphosate. However, based upon our earlier reviews of the USFS EIS prepared by Labat-Anderson, there are probably some errors in this table. The USFS should check with Steve McCorquodale in the Atlanta regional office for our specific comments on this.

4.Pg.19, Table 3-4: This table states that there is the "possibility of weak oncogenic effect in mouse study." Since this statement was taken from an EPA document prior to the EPA FIFRA Scientific Advisory Panel hearing and report of 1986, We feel that it is misleading to include it in this table. The SAP concluded that there was inadequate evidence of oncogenicity in the animal experiments, including the mouse study. We think this statement should be removed from Table 3-4.

5.Pg.22, Glyphosate Carcinogenicity: In the last sentence of the first paragraph of this section the reference given for the discussion of the SAP findings (EPA, 1986b) is incorrect. Reference 1986b is listed as a Chemical Information Fact Sheet for 2,4-D. This error should be corrected. Also in line 4 of that same paragraph it would be more accurate to state that the kidney tumors observed in the mouse study were all benign tumors.

In the third paragraph of this section N-nitrosoglyphosate (NNG) is listed as "A carcinogenic nitrogen derivative of glyphosate". There is no evidence that NNG is carcinogenic. To the contrary, studies conducted by Monsanto have shown NNG not to be carcinogenic. This same error appears on pg.8, Append.D, Attach.A. These errors should be corrected.

6.Pg.23, Cancer Potency: The last sentence of the second paragraph of this section states that "The line specifies what the increase in cancer probability is for each unit increase in dose". It is actually the slope of the line which describes this relationship. This should be corrected.

7.Pg.27, Glyphosate Cancer Potency: The cancer potency for glyphosate is listed as 0.000034 (mg/kg/day). Again, the reference for this number is a pre-SAP document which is outdated as a result of the SAP findings. This number was calculated from data which did not include the tumor found in the control group of male mice. The SAP clearly stated that they considered this tumor to be real and that it should be included in any risk assessment calculations. The potency value can change dramatically based upon a change in tumor incidence. Therefore, it is imperative that this value be recalculated for glyphosate and that this error be corrected throughout the document. We have repeatedly pointed this error out to the Forest Service, but it keeps appearing in every document we review. This is not a



trivial matter to us. We feel that there is no evidence to indicate that glyphosate is oncogenic, but if one were to assume so for a worst case analysis, the numbers should at least be accurate!

8.Pg.24, item number 5: This statement says that the cancer potencies for certain of the herbicides considered to be carcinogenic were calculated using the GLOBAL 82 computer program. Apparently this was not done for glyphosate, where it appears that the Forest Service simply relied upon the outdated document discussed above in comment 7. The cancer potency for glyphosate should be recalculated by the Forest Service using the same data the SAP considered, which includes the tumor found in the control group. Based upon the results of these calculations, it is likely that Tables 5-11, 5-12, and 5-13 will need revision too.

#### Appendix H, Section 2

1.Pg. H-10: The first paragraph of this page states that the chronic toxicity data available for glyphosate was considered borderline between minimally adequate and inadequate. We cannot see any justification for such a statement. Based upon our previous comments, there is adequate chronic toxicity data available which meets all current regulatory test guidelines and which are considered valid by the EPA. What more could this group want?!

2.Pg. H-23, Glyphosate Data: There are numerous errors on this table, so we have simply written our corrections directly on the table, a copy of which is attached. A general comment needs to be made with regard to the last column of this table, however. In several places under "notes" it is stated that certain studies are "EPA minimum". This term is very misleading. In EPA terminology, "core minimum" means that a study has fulfilled all of the requirements for that type of study, but has slight deviations from the Agency testing guidelines. It does not, however, imply that the quality of the data is inadequate or that the study conclusions are not valid. In fact, such a classification is acceptable for registering a herbicide with the EPA. Therefore, we feel that the Forest Service should choose some other, or at least a more complete description of the EPA rating of a study.

3.Pg. H-68, Review Table for Mutagenicity of Glyphosate: Four of the listed mutagenicity studies are said to be inadequate based upon either a CDFA or EPA review. We checked the EPA one liners used to write the reregistration standard for glyphosate (No. 661-A, dated 06/10/85) and could find no reference to an unaccep-

table in vivo host-mediated assay. Furthermore, the CDFA reviews referenced were the first round of reviews which were conducted by people not trained in toxicology. Monsanto subsequently submitted detailed rebuttals to all of these mutagenicity reviews and has had each of these studies upgraded to acceptable. This table will need to be corrected to represent the most current data.

4.Pg. H-88, Summary of Glyphosate Rat Oncogenicity Study: This table states that there was a "possible increase in testicular tumors in high dose group, but questionable significance." If one looks at the reregistration standard (1986) the EPA concludes that "Because of the absence of a dose-dependent effect, the lack of preneoplastic changes, the wide variability in incidences between the high dose group and the historical controls, and lack of any evidence of genotoxicity, it was concluded that the observed incidence did not demonstrate an oncogenic response." Based upon this information, the statement on pg. H-88 should be removed.

5.Pg. H-97, Reproductive Toxicity Studies: The first study listed, a 3-generation rat study at dosages of 0,30,100, and 300 ppm glyphosate, is an IBT study and, as such, should not even be included in the table. Please delete it.

For the second 3-generation study listed, the reproductive NOEL should be 30 mg/kg/day, not 10 mg/kg/day as listed. See our earlier comments for a more detailed discussion of this point.

6.Pg. H-108, Developmental Toxicity Studies: The third and fourth teratology studies listed for glyphosate are IBT studies and should be deleted from the table. These studies have been repeated and are covered by the other studies listed.

#### Human Health Effects: Characterization of Risk For 16 Herbicides

Based upon all of the comments above, we feel that many of the tables in this section need major revision, both in terms of the factual data listed (i.e., Table IV-19) and in terms of the conclusions regarding the level of confidence in the data. Many of the statements of marginal or low levels of certainty were based upon old EPA, old CDFA, or old IBT data which shouldn't have even been included in the analysis. In our opinion, there is no scientific basis for the statements made in this qualitative assessment of glyphosate risks. In fact, everything in this section appears to contradict the quantitative analyses conducted in the other sections of the document.

TWf



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, D.C. 20460

RECEIVED JUN 25 1987

OFFICE OF  
PESTICIDES AND TOXIC SUBSTANCES

JUL - 9 1987

Mr. Kevin F. Cannon  
Monsanto Company  
1101 17th Street NW.  
Washington, DC 20036

Dear Mr. Cannon:

Subject: Roundup Herbicide (Preharvest Soybeans and Dog Study)  
EPA Registration No. 524-308  
EPA Pesticide Petition No. 6F3380  
EPA Food Additive Petition No. 6H5502  
Your Submissions Dated August 11, 1986 and February 20, 1987

This refers to EPA Pesticide Petition No. 6F3380 proposing an increase in tolerance for the combined residues of the herbicide glyphosate (N-(phosphonomethyl)glycine) and its metabolite aminomethylphosphonic acid in or on the raw agricultural commodity soybeans from 6 parts per million (ppm) to 20 ppm and EPA Food Additive Petition No. 6H5502 proposing an increase in tolerance for soybean hulls from 20 to 100 ppm for glyphosate and its metabolites.

The scientific review and evaluation of the additional information submitted on the 1 year dog study has been completed. The following are our comments/conclusions.

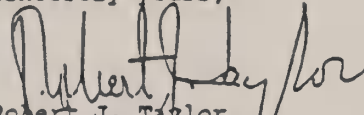
1. We conclude that the apparent decreases in absolute and relative pituitary weights of the mid- and high-dose male dogs are not compound related.
2. The NOEL for this study is 500 mg/kg/day (the high dose).
3. This study is classified as Core Guideline.

# I/B Public Participation and Consultation

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The information submitted February 20, 1987 has been routed for comment. Further action will await completion of scientific review and evaluation of submissions of September 18, 1986 and February 20, 1987.

Sincerely yours,



Robert J. Taylor  
Product Manager (25)  
Fungicide-Herbicide Branch  
Registration Division (TS-767C)

## GLYPHOSATE

Source	Effects	Rt	Sp	Dose-schedule-duration	NOEL	LOEL	Notes
EPA 1984k		F	R	26 months	30 mg/kg/day		
Monsanto: 1982c in 1984a	inc. mortality	D	W	0, 100, 1000, 5000 mg/kg/day for "15 out of 21 days"	5000 mg/kg/day		IDRC NOEL 1000, LOEL 5000
<i>Roundup</i> Monsanto: 1972 in 1984a	dec. food cons., body wt.; inc. mortality	D	W	6.4% 32% aq. solution by Vol. (5 X intended conc.)	325.4 mg/kg/day	3.8 mg/kg/day (3 X intended conc.)	
<i>Roundup</i> Monsanto: 1983a in 1984a		I	R	.36 mg aq solution/l air 6 hrs/day, 5 days/wk, 30 days	0.36		
Monsanto: 1979h in 1984a	inc. in relative and absolute lung wt.	F	R	0, 200, 2000, 5000, 12500 ppm or 0, 13.5, 135, 340, 820 mg/kg/day, 90 days	2000 ppm or 135 mg/kg/day		
Monsanto: 1979i in 1984a	dec. growth at 50,000 ppm	F	M	up to 50,000 ppm for 90 days	10000 ppm or 2305 mg/kg/day		
Monsanto #83-137 8-22-85	hypoplasia of pituitary gland	O	D	0, 20, 100, 500 mg/kg/day for 1 year	20 mg/kg/day	100 mg/kg/day	tentative NOEL, LOEL, EPA reqs. (mop data)
Monsanto, 1985 #ML-83-137		O	D	96% glyphosate in capsul 0, 20, 100, 500 mg/kg/day for 1 year	> 500 mg/kg/day		
Monsanto, 1983 #77-2061	central lobular hepatic necrosis/hypertrophy; chronic interstitial nephritis; proximal tubule epithelial basophilia and hypertrophy	F	M	0, 1000, 5000, 30000 ppm 99.7% glyphosate (for 2 years)	5000 ppm		chronic feeding study
IRDC #IR-79-018 2-29-80	inc. mortality; misc. clinical signs	G	W	0, 75, 175, 350 mg/kg/day 98.7% glyphosate, days 6-27 of gestation	175 mg/kg/day (maternal systemic)		teratology study EPA "minimum" Cal "acceptable"
Biodynamics #77-2062 9-18-81	inc. mortality; dec. wt. gain; clinical pathology	F	R	0, 3, 10, 31 mg/kg/day for 26 months	> 31 mg/kg/day systemic		onco study "minimum"
Biodynamics #77-20663 7-6-82		F	R	0, 10, 30, 100, 350 mg/kg/day 3 generations	10 mg/kg/day		"minimum"
IRDC #401-054 3-21-80	maternal tox.; inc. mortality; dec. wt. gain; alt. gen. appearance	F	R	0, 300, 1000, 3500 mg/kg/day	1000 mg/kg/day maternal tox.	3500 mg/kg/day	teratology study "minimum"

California 1 liners (12-2-86) does not acknowledge EPA's summary (Guidance for the Registration of Pesticides Containing Glyphosate, 6-30-86) that states a "tentative" NOEL of 20 mg/kg/day based upon studies in pituitary weight at 100 and 500 mg/kg/day. No evaluation of "tentative" or "apparent" available. The Cal 1 liner does, however, claim "no data gap" in their review of its chronic

GLYPHOSATE: NEUROTOXICITY

SPECIE	TEST	RESULT
RAT	ACUTE CHOLINESTERASE INHIBITION (10,000 mg/kg)	NEGATIVE
CHICKEN	DELAYED NEUROTOXICITY (1250 mg/kg 2x/DAY FOR 3 DAYS, REPEATED 21 DAYS LATER. TOTAL DOSE = 15 G/KG)	NEGATIVE
RATS, MICE, DOGS	SUBCHRONIC/CHRONIC	NO ABNORMAL BEHAVIOR

CONCLUSION

GLYPHOSATE DOES NOT INDUCE NEUROTOXIC EFFECTS AND IS  
NOT AN INHIBITOR OF ACETYLCHOLINESTERASE.

N-NITROSO-GLYPHOSATE  
TOXICOLOGY TESTING

ACUTE ORAL & DERMAL TOXICITY  
ACUTE SKIN & EYE IRRITATION

2-WEEK ORAL TOXICITY - RAT  
4-WEEK ORAL TOXICITY - MOUSE  
4-WEEK ORAL TOXICITY - RAT  
13-WEEK ORAL TOXICITY - RAT  
13-WEEK ORAL TOXICITY - MOUSE

2-YEAR ORAL TOXICITY - RAT  
2-YEAR ORAL TOXICITY - MOUSE  
2-YEAR ORAL TOXICITY - DOG  
1-YEAR ORAL TOXICITY - HAMSTER

AMES/SALMONELLA POINT MUTATION ASSAY  
DOMINANT LETHAL MUTATION ASSAY - MOUSE

3-GENERATION RAT REPRODUCTION  
TERATOLOGY - RABBIT



N-NITROSOGLYPHOSATE

During an investigation of the composition of Roundup® Herbicide, it was found that a trace amount of N-nitrosoglyphosate (NNG) was present. Because some N-nitroso compounds have been shown to have tumor forming potential in laboratory animals, Monsanto felt responsible to investigate the possible health effects from this trace contaminant.

Although not required to support product registration, Monsanto wanted to determine if the presence of this N-nitroso compound as a trace contaminant would pose a potential health hazard to applicators or consumers. As a result, a series of studies were designed to determine the concentration of NNG in Roundup herbicide, the potential level of NNG exposure to applicators, and the level of accumulation, distribution, and elimination of NNG in laboratory animals. A number of studies were also conducted to assess the short-term acute and long-term chronic effects in laboratory animals. Additional studies were conducted to determine if NNG residues might be present in crops, wild life or in the environment.

The results of this comprehensive assessment of N-nitrosoglyphosate demonstrated that:

1. NNG is not oncogenic, teratogenic or mutagenic.
2. The degradation of NNG in the environment is both rapid and essentially complete.
3. Exposure to the applicator under use conditions is non-detectable.
4. Exposure to the general public is virtually non-existent.



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There are currently no regulatory actions pending as a result of the NNG contaminant in Roundup. In 1978 the EPA stated "Regulatory action pending against glyphosate, based on its contamination with N-nitrosoglyphosate (NNG) has been resolved because no residues of the contaminant at detectable levels are present in raw agricultural commodities, nor does it pose a hazard to the applicator". Most recently, in the Reregistration Standard for glyphosate, issued August 11, 1986 by the EPA, the following statement is made regarding the issue of NNG, "Because the amount of N-nitrosoglyphosate is less than 1.0 ppm no additional toxicology data are required." It is clear that NNG is neither a regulatory nor a registration issue in regards to glyphosate.

#### MAMMALIAN TOXICOLOGY AND METABOLISM STUDIES

A series of studies were conducted by a number of separate laboratories to evaluate the health characteristics of N-nitrosoglyphosate. The results of these studies indicate that NNG is relatively non-toxic, is rapidly excreted without undergoing any chemical change, does not bioaccumulate, is not mutagenic and does not cause birth defects or cancer in laboratory test species. No additional testing with NNG has been requested by the EPA.

#### ENVIRONMENTAL FATE STUDIES

The environmental studies conducted on NNG revealed that the material is very unstable in sunlight with a half-life of less than 30 minutes. Results of soil dissipation studies, carried out in four different soil types, showed that NNG was rapidly biodegraded, with a half-life as short as five days. NNG breaks down completely, with carbon dioxide being the major breakdown product in all cases. Soil mobility studies with NNG indicated that the material moved very little. Also, it was found that NNG was non-volatile. These studies show N-nitrosoglyphosate to be a compound which dissipates very rapidly and completely in the environment, with little capacity for leaching through soil or vaporizing into the air.

#### CROP RESIDUE STUDIES

Residue analysis conducted on crops registered for Roundup use through 1977, revealed no measurable residue of N-nitrosoglyphosate. Of the thousands of crop, soil, and wildlife residue analyses conducted to date, NNG has been found less than 10 times, and then in concentrations less than 0.05 parts per million (ppm). This means the consumer has virtually no chance of exposure to NNG as a result of consuming food which came from Roundup treated fields.

#### APPLICATOR EXPOSURE STUDY

A study was undertaken to determine the amount of NNG to which an applicator may be exposed when mixing and applying Roundup. The study was designed to also determine the amount of NNG to which a worker might be exposed upon reentering a treated field. Analysis of material collected from air, skin and clothing sampling studies resulted in non-detectable levels of NNG. The results of these tests when combined with the crop and soil residue studies, demonstrate that the likelihood of exposure of applicators, consumers or others to N-nitrosoglyphosate is practically non-existent.

#### SUMMARY

Risk assessment procedures are based upon the toxicology of a material and upon the potential for exposure. Based on the results of applicator exposure studies and a wide range of toxicology, environmental fate and residue studies performed by a number of laboratories, it is concluded that:

- (1) NNG has not been shown to cause adverse health effects;
- (2) the concentration of N-nitrosoglyphosate in Roundup herbicide is extremely low;
- (3) exposure to the applicator under normal use conditions is non-detectable;

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- (4) exposure to the general populace is virtually non-existent;
- (5) biodegradation and photodegradation are both rapid and essentially complete.

These studies provide sufficient proof that trace levels of N-nitroso-glyphosate in Roundup herbicide do not present an unacceptable risk to man or the environment, that its formation in the environment following application of Roundup is most unlikely, and that this N-nitroso compound is not present in crop residues.

Roundup® is a registered trademark of Monsanto Company.

*Contact Dermatitis* 1986; 15: 152-156

## Irritation, sensitization, photoirritation and photosensitization assays with a glyphosate herbicide

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Glyphosate, a widely utilized herbicide, was evaluated for acute irritation, cumulative irritation, photoirritation and allergic and photoallergic contact potential in 346 volunteers. The herbicide was less irritant than a standard liquid dishwashing detergent and a general all purpose cleaner. There was no evidence for the induction of photoirritation, allergic or photoallergic contact dermatitis. 10% glyphosate in water is proposed as a diagnostic patch test concentration.

**Key words:** Glyphosate - irritation - cumulative irritation - phototoxicity - photoallergic contact dermatitis - patch test concentration - herbicide.

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Glyphosate is a well-known herbicide which is applied as a foliage spray for the control or destruction of most herbaceous plants. First sold for non-crop industrial uses in 1974, its authorized uses have expanded to agricultural, recreational and public area and road side applications as well as home use. Methods of application vary from hand-held sprayers to specialized large scale spray equipment.

Because in vivo techniques for evaluating a compound's potential to initiate dermatitis have become increasingly predictive due to experimental sophistication and accuracy, further evaluation of its potential for causing dermatitis was desirable.

This study was initiated to evaluate a glyphosate herbicide's potential to cause cumulative irritation, allergic contact dermatitis, photoirritation and photoallergic reaction, and to provide data permitting estimation of an appropriate diagnostic patch test concentration. In addition to the herbicide, 3 well-known household compounds were used as comparative controls.

### Material and Methods

#### Test compounds

(i) Glyphosate herbicide, (Roundup®, Monsanto Company, St. Louis, Missouri 63167) (see Fig. 1). Glyphosate is N-(phosphonomethyl) glycine; the formulation utilized contained 41% glyphosate. The test compound herbicide is 98.4% pure and contains the isopropylamine salt of glyphosate, water and surfactant.

(ii) General all purpose cleaner (Pinesol Liquid®, American Cynamid, Wayne, New Jersey 07470).

(iii) Shampoo (Johnson Baby Shampoo®, Johnson & Johnson, New Brunswick, New Jersey 08933).

(iv) Liquid dishwashing detergent (Ivory Liquid®, Proctor & Gamble, Cincinnati, Ohio 45201).

Test compounds were used at full strength and diluted (10% v/v) in distilled water. Distilled water also served as the negative control vehicle.

## GLYPHOSATE HERBICIDE

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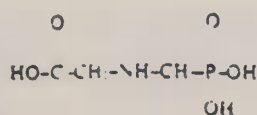


Fig. 1. Formula of glyphosate.

#### Test population

A total of 346 normal volunteers were studied. All subjects, male and female, were between the ages of 18 and 80 years. None of the test subjects had active skin pathology or disease which would adversely affect the study.

#### Path occlusion material

Skin test sites were covered with non-woven fiber patches (Webril<sup>®</sup>, Curity Inc., New York, New York). Patches were fixed in place with hypoallergenic plastic tape (Blenderm<sup>®</sup>, 3M Co., St. Paul, Minnesota 55106).

#### Test scoring scale

Skin test sites were evaluated for evidence of inflammation and graded as follows: negative reaction [0]; equivocal reaction [+/-]; erythema [1]; erythema and induration [2]; erythema, induration and vesicle [3]; and erythema, induration and bullae [4]. In addition, the subjects were questioned about the presence or absence of burning, stinging or itching. To ensure consistency, test site reactivity was evaluated by the same individual for each study. To prevent experimental bias, all studies were performed on a double-blind basis.

#### Data analysis

At the conclusion of each study, the skin test scores for each compound were summed. The mean and standard deviations for each compound were determined.

#### Single application irritancy assays

Full strength test compounds (0.1 ml) were applied to intact and Draize-type abraded skin on the backs of 24 normal volunteers (1). Patches were removed at 24 h. Skin test sites were evaluated at 24 and 48 h after application of the compounds.

#### 21-day cumulative irritancy assays

The method used was that described by Phillips et al. (2). Using 23 normal volunteers, the test materials were applied 5 days weekly for 21 days to the same site. Patches were not reapplied on weekends; they remained in place for these periods. Test site readings were made at each removal of the patch.

#### Modified Draize skin sensitization study

To further evaluate the herbicide for irritation and sensitization by repeat insult patch testing, a modified Draize skin sensitization study was performed on 204 adult volunteers (3). For this investigation, test patches moistened with approximately 0.2 ml (0.2 mg) of the full strength test solutions were applied to the subjects' upper arms or back. During the 3-week induction period, each volunteer was patched 3 times per week, and the patches left in place for 48-72 hours. After induction, the subjects received no patching for 2 weeks. Then, after the 2-week rest period, each volunteer received a challenge patch containing the compounds for a 48-h application. The challenge site was examined and graded upon patch removal, and again 48 h later.

#### Photoirritation [phototoxicity] study

The study was performed by a modification of the procedure outlined by Marzulli et al. (4). Skin on the upper arms or backs of 15 subjects was stripped to glistening with cellophane tape to remove most of the stratum corneum. Full strength test compounds were applied to the test sites for 24 h. The test sites received irradiation with ultraviolet A light (UVA) from a Hanovia Inspectalight for 45 min at 9 inches distance. After UVA irradiation, the sites were exposed to 2/3 MED of UVB irradiation from an air-cooled Kromayer light. Each site was evaluated at 24 h after UVA irradiation. Non-irradiated cellophane-tape-stripped application sites provided internal control for irradiation.



*Modified photo Draize skin sensitization study*

A modified photo Draize skin sensitization study to evaluate the herbicide for irritation and potential photosensitization was carried out on 24 adult subjects (3). Although this is a "standard" test sample in photosensitization assays, greater sensitivity would be obtained with a larger sample. Non-woven fiber patches containing 0.2 ml of the herbicide and other test compounds were affixed to the upper arm or back with hypoallergenic tape for 24 h. The procedure was performed 3 times weekly for a total of 3 weeks. After patch removal, evaluation and grading, the site was irradiated with 3 MED's of unfiltered light from an air-cooled Kromayer lamp. On the final elicitation (after induction and a 2-week rest period), a duplicate patch was irradiated with 10 MED's window glass-filtered light to remove the erythema rays. Approximately 2 weeks after the sensitization phase, challenge applications were performed. Challenge patches were applied to a

*Table 1. Tabulation of readings for single application irritancy assay on non-abraded skin for glyphosate herbicide, all purpose liquid cleanser, liquid dishwashing detergent, baby shampoo and water*

		Unabraded skin	
		24 h	48 h
glyphosate herbicide	0	24	23
	±	0	0
	1	0	1
	2	0	0
all purpose liquid cleanser	0	16	16
	±	5	4
	1	2	4
	2	1	0
liquid dishwashing detergent	0	18	16
	±	5	4
	1	2	4
	2	1	0
baby shampoo	0	23	24
	±	1	0
	1	0	0
	2	0	0
water	0	23	23
	±	1	1
	1	0	0
	2	0	0

*Table 2. Tabulation of readings for single application irritancy assay on abraded skin for glyphosate herbicide, all purpose liquid cleanser, liquid dishwashing detergent, baby shampoo and water*

		Abraded skin	
		24 h	48 h
glyphosate herbicide	0	10	10
	±	4	6
	1	10	3
	2	0	0
all purpose liquid cleanser	0	15	14
	±	3	7
	1	1	3
	2	0	0
liquid dishwashing detergent	0	13	10
	±	8	3
	1	3	6
	2	0	0
baby shampoo	0	21	20
	±	3	4
	1	0	0
	2	0	0
water	0	23	22
	±	1	2
	1	0	0
	2	0	0

previously unpatched site and were left in place for 24 h. After removal and irradiation as noted above, the subjects received examination and scoring for any reaction at 96 h following application. The volunteers also received an additional open application of 0.05 ml of the herbicide to a 2 cm area on the forearm, and were then asked about the presence or absence of burning, stinging or itching.

**Results**

The data from single application irritancy studies on unabraded skin is shown in Table 1. The herbicide has no greater irritation potential than either the all purpose cleaner, the dishwashing liquid, or the baby shampoo. When tested on abraded skin, the herbicide had a slightly greater incidence of erythema at the 24-h reading; however, on the 48-h reading, the herbicide-induced irritation was similar to that of the all purpose cleaner and the dishwashing liquid (Table 2).

Table 3. 21-day cumulative irritation assay for glyphosate herbicide, all purpose liquid cleanser, ivory liquid dishwashing detergent and baby shampoo

Test sites	Total score	Average score	Standard deviation
glyphosate herbicide	39	1.4	3.5
all purpose liquid cleanser	343.5	12.7	8.2
liquid dishwashing detergent	372.5	13.8	8.7
baby shampoo	34	3.1	5.7

The 21-day cumulative irritancy assay was used to adequately predict the irritation potential of the test compounds. Statistical analysis of the test data showed that the herbicide and the baby shampoo were statistically less irritating than either the all purpose cleaner or the dishwashing liquid (Table 3).

In the modified Draize skin sensitization study, none of the 204 volunteers manifested significant skin irritation to any of the commercial products tested. Sensitization was not induced by any of the test compounds in any of the 204 volunteers.

Data from the studies designed to evaluate the effect of ultraviolet light on skin exposed to the test compounds demonstrated that the compounds had no potential for photoirritation or photosensitization. There were no positive skin tests induced by the 4 test compounds in the photoirritation and photosensitization studies.

In the 21-day irritancy assay, the modified photo-Draize skin sensitization study and the modified Draize skin sensitization study, the subjects were asked whether they subjectively felt any burning, stinging or itching from the test compounds. None felt any such symptoms.

#### Discussion

This is the first study which delineates the irritation, photoirritation, sensitization and photosensitization potential of an agricultural herbicide in man. Statistical analysis of the

results indicates that the herbicide and baby shampoo have less irritant potential than either the all purpose cleaner or the dishwashing liquid. Compared to the baby shampoo, the herbicide was statistically indistinguishable in its irritant potential. The tests also show that it did not induce sensitization, photoirritation or photosensitization.

The only publication of glyphosate dermatotoxicity is that of Hindson & Diffey (5). They believed they had identified an agricultural worker with photosensitization due to glyphosate herbicide. However, after subsequent testing, they stated that the offending chemical was *not* the glyphosate but the biocide (6).

Since commercial glyphosate is not a single pure chemical, we cannot rule out the possibility that small amounts of contaminate might under unusual circumstances sensitize. The issue can be approached by testing putatively sensitized subjects with higher than usual concentrations of such materials.

#### Conclusion

These data, derived from utilizing normal volunteers, provide a baseline for choosing appropriate diagnostic patch test concentration. We suspect that 10% glyphosphate in water should be non-irritant, in the light of several hundred volunteers tested at full strength without significant reaction. However, without further retesting of reactive subjects, one cannot rule out the possibility of the excited skin syndrome.

#### References

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# National Coalition Against the Misuse of Pesticides

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February 15, 1988

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Vegetation Management  
Group Leader  
USDA Forest Service  
Pacific Northwest Region  
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Dear Mr. Larsen:

This letter communicates the comments of the National Coalition Against the Misuse of Pesticides on the Draft Environmental Impact Statement entitled "Managing Competing and Unwanted Vegetation" (region #6). This document appears to reflect a sincere effort by the authors to solicit, consider and incorporate comments and suggestions by the entire impacted community. This has resulted in an unusually progressive DEIS that is readable and informative, and that invites continued public scrutiny and participation.

Our specific concerns over the document are as follows:

1. As pointed out in the document, there is much that remains unknown about the potential human health and environmental effects of the herbicides that are considered. Until these data gaps can be filled, it is irresponsible to accept any management option that does not hold herbicide use to a minimum.
2. All of the herbicide formulations contain 'inert' ingredients, many of which may be toxic or have not been adequately tested. While the document states that risks from inerts can be reduced by using only herbicide formulations which contain those that are the least toxic (IV-120), it is not clear how the Forest Service will be able to make this determination, since the identity of inerts is proprietary information that can legally be kept secret.
3. There appears to be a major lack in information on the effects of the different management options, and especially of herbicides, on wildlife. Long and short term effects on wildlife populations, not just acute toxicity of chemicals to a few individual species, must be considered. On page IV-69 of the document, an attempt is made to justify conclusions of negative wildlife impact from herbicide use based on relatively low acute toxicity and low environmental persistence. However, no information is presented on the effects of the herbicide formulations on wildlife reproduction, behavior, vigor, etc.

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February 15, 1988  
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Also, the use of an adverse effects threshold of 1/5 of the LD<sub>50</sub> or LC<sub>50</sub> seems quite arbitrary and unrealistic, and once again does not consider anything but acute toxicity.

4. Possible benefits that could be attributed to the 'unwanted vegetation' are not considered. For instance, alder and ceanothus both fix nitrogen, and thus play an important role in forest nutrient recycling. Potential commercial applications for other non-timber species, such as tan oak, are similarly not considered. These potential benefits are discussed in the DEIS, but all are dismissed without further analyses because of a lack of data. These beneficial effects must be considered, and if necessary, data upon which to make intelligent decisions must be generated.

5. We felt that more alternative management choices should have been provided. For instance, option D is attractive because it employs a diversity of tactics, gives careful consideration to whether control actions are actually justified, and uses herbicides only as a last resort. However, there are no additional restrictions placed on the use of herbicides. Option E, on the other hand, does not require as diverse an approach as D, but restrictions are placed on herbicide use, such as prohibiting aerial application and the use of certain herbicides. We would have liked to have seen an analysis of an alternative similar to D, but with the restrictions on herbicide use as specified in alternative E. In particular, the herbicides 2,4-D and amitrole appear to pose an exceptional threat to human health, and should not be considered an acceptable risk under any conditions. Too little information on fosamine and diuron is available to properly evaluate their potential adverse effects on human health and the environment, and so they should also be dropped from consideration.

6. If aerial application is to be permitted, then adequate steps must be taken to prevent drift from occurring onto open water or watersheds. All watersheds must be identified and protected from aerial herbicide applications by adequate buffer zones. The dimensions of these buffer zones should be determined such that no drift would occur even under worst-case conditions. One to two hundred-foot buffer zones, as suggested in the DEIS, clearly do not meet these criteria.

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7. If herbicides are to be used, it is essential that prior notification be given to all residents, visitors, and workers, and that all treated areas be adequately posted during and after treatment. Notification and posting must consist of all chemicals and carriers used, concentrations, date and time of application, information on potential health effects associated with all of the chemicals, type of application, and person or agency to contact for questions, information, or comments.

8. Of the alternatives presented, we feel that alternative D comes the closest to meeting the goals for an acceptable vegetation management program - that is maximizing net economic return while minimizing adverse effects on human health and the environment. In this option a variety of tactics are available depending on the task that needs to be accomplished, with the use of herbicides always reserved as a last resort. We feel that this provides adequate consideration of both public and worker safety without compromising the foresters' ability to maintain a productive forest.

However, we do have some specific concerns with this alternative.

a) It is not clear who will be making decisions about which tactics are to be used under any given circumstances, or what guidelines or information are available to help that individual make that decision. There is mention of written prescriptions being required prior to undertaking any control action, however details are not provided. These details must be known by anyone attempting to evaluate this alternative.

b) The "use of herbicides only as a last option" will only reduce the use of herbicides if other options are available and are perceived by decision-makers as being viable. It is essential that the decision-making process is structured so that no option can be discarded without careful and responsible consideration. If left up to subjective decisions by local officials, there is little chance that the spirit of this alternative will be achieved. Once again, to ensure that all options are used as intended, careful guidelines on the available options and conditions of use must be developed.

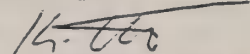
# I/B Public Participation and Consultation

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As a final comment, the alternative that is ultimately chosen should direct that, as much as possible, vegetation management activities be done in such a way that new and useful information is generated. This DEIS has, as have all EIS's, pointed out significant gaps in our knowledge that make intelligent decisions difficult. Progress depends on the development and testing of new ideas, and the best way for this to occur is in the forests by forest managers. Therefore, vegetation management activities should, by design, include ways to try out new methods and ideas, quantify and evaluate the results, and thus improve our base of knowledge in this area.

Thank you for the opportunity to comment.

Sincerely,



Kevin Thorpe, Ph.D.  
Staff Entomologist





## NATIONAL WILDLIFE FEDERATION

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February 16, 1988

Gary Larsen  
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Dear Mr. Larsen:

We have reviewed the draft environmental impact statement (DEIS) "Managing Competing and Unwanted Vegetation," and offer the following comments. We are pleased to see that an alternative (D) approximating Integrated Pest Management (IPM) is included among the three alternatives identified as "preferred" in the DEIS. We urge you to choose this alternative, with refinements and clarification, as the selected alternative in the final EIS. As you are well aware, the issue of vegetation management, especially the use of herbicides, has been extremely divisive in the Northwest. The public involvement process followed in developing the DEIS has been very open and creative, and has gone a long way toward improving relationships among interest groups and agencies. We hope that this same attitude can be carried through to the decision-making process and on-the-ground management. Not only will the forest resources benefit, but there is an opportunity for substantial progress in convincing the public that the Forest Service can respond to public concern and truly "care for the land."

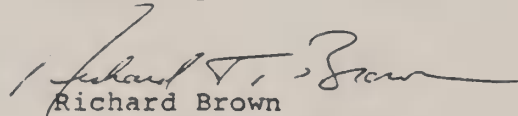
While alternative D contains many desirable features, such as an emphasis on natural ecosystem processes and the use of herbicides only as a last option, some clarification is needed. This is particularly true if Forest Service personnel and the public are to have a common understanding of what criteria are to be applied, and what it means to be a "last option." That project-level analysis can adequately tier to this regional EIS seems unlikely, especially for Forests that have extensive and controversial vegetation management programs. In such cases, separate, Forest-level environmental documents will be appropriate to establish meaningful standards for project analysis and operation.

There are several deficiencies in the DEIS pertaining to the analysis of effects on wildlife and habitat, especially for herbicides. A more thorough documentation needs to be provided of known adverse effects of these substances, as well as a more complete discussion of uncertainty and risk due to: extension of laboratory results to field situations; extrapolation across a

wide range of species; and unknown toxicity of "inerts" and full formulations. Another broad area where lack of information carries considerable risk is the effects of herbicides (and other treatments) on invertebrates and microorganisms. These species are seldom considered either in research or project analysis, but are more vital to the long-term productivity of the forest ecosystem than the more visible vertebrate species.

Again, we wish to express our appreciation for the considerable effort the Forest Service has expended to fully involve the public in the development of this DEIS. We hope that the benefits of this approach are also apparent to you, and that lessons learned here will be applied in other settings.

Sincerely

  
Richard Brown  
Resource Specialist

RB/bas



Comments on BLM W. A.  
Veg Mgt



NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

May 11, 1986

Comments on Supplement to the Western Oregon Program -  
Management of Competing Vegetation  
Draft Environmental Impact Statement

Background

The following comments are offered on behalf of the Northwest Coalition for Alternatives to Pesticides (NCAP). Although the official comment period ended on April 30, 1986, Gregg Simmons indicated to NCAP by phone on April 21, 1986 that our comments could arrive on May 12, 1986 since the BLM would not be meeting prior to that for discussion of the comments. Mr. Simmons indicated that these comments will receive the same consideration as comments that had arrived by April 30.

Although NCAP sent a Freedom of Information Act request on March 5, 1986 to the U.S. Environmental Protection Agency (EPA) to obtain unpublished documents referenced to the EPA in the Supplement to the Western Oregon Program - Management of Competing Vegetation. Draft Environmental Impact Statement, we have still not received five of the documents. We will send in comments based on those documents when they are received and expect that such comments will be adequately considered and responded to prior to the issuance of a Final EIS.

On March 5, 1986, NCAP requested that copies of all unpublished references be sent to the Eugene District BLM for review by NCAP during the comment period. This request was denied. Mitch Lucas, a student at the University of Oregon, requested copies of the unpublished references and was granted his request. After intervention by attorney Michael Axline on behalf of NCAP, copies of most of the unpublished references were sent to NCAP on April 23, six weeks after the original request. NCAP has not had sufficient time to read those documents, as their arrival coincided with preparation of documents to appeal the BLM decision to implement the program sketched in the BLM Northwest Area Noxious Weed Control Program - Final Environmental Impact Statement.

*recycled paper*

NCAP believes the State BLM office in Portland should have had all unpublished referenced material available at its office for distribution to the interested public the day this Draft Supplement was released. The published reference material should have been available at the Portland office for review by the interested public, since many of the published articles are not available at local libraries and are not easily obtained within the comment period through interlibrary loan. In the comments that follow, NCAP will indicate that it is crucial that the documents BLM references be reviewed, because many of the documents reviewed in fact provide information that differs greatly from the conclusion(s) attributed to them.

#### General Comments

The Draft Supplement must be rewritten and recirculated as a Draft Supplement because as it now stands, (a) it is unreviewable by the public; (b) its summary of referenced material is frequently false; and (c) its quantification and science are fundamentally erroneous.

(a) The Supplement is unreviewable by the public. The calculations that produce the 160 tables of "margins of safety" for the exposed public and workers (L-131 - L-178) are unreviewable because the Supplement does not indicate what formulas were used to arrive at the figures and does not indicate the precise numbers that were entered into the formulas or where those precise numbers came from. NCAP is therefore unable to comment on either the logic, science, or mathematics that yielded the thousands of numbers that presume to tell the public and workers their risk from BLM's herbicide program.

(b) The Supplement's summary of referenced material is frequently false. The majority of this Supplement (i.e., Appendix L, "Human Health Risk Assessment for the Use of Herbicides in the Vegetation Management Programs of the U.S. Forest Service in Washington and Oregon and the Bureau of Land Management in Western Oregon") was prepared by Labat-Anderson Incorporated (L-1). The reporting by Labat-Anderson of the mutagenicity and carcinogenicity of the pesticides from EPA documents in Table 3-4 (L-37) is fraudulent and should in and of itself require an entirely new Supplement. It has taken NCAP dozens of hours to compare the EPA documents cited in Table 3-4 to the summary offered by Labat-Anderson in that Table and to the accompanying text written by Labat-Anderson. As a result, numerous other documents have not been reviewed. In the absence of time to conduct such an intensive review, it must be presumed that other conclusions drawn by Labat-Anderson from other documents are equally flawed. NCAP is angry that BLM has produced such a shoddy document. It makes a travesty of the NEPA process.

(c) The Supplement's quantification and science are fundamentally erroneous. The numbers in the 160 tables of "margins of safety" are meaningless because they are based on laboratory-determined systemic and reproductive NOELs that are determined by testing only the active ingredient of each herbicide. As indicated in an EPA memorandum<sup>1</sup>, discussion,<sup>2</sup> and list, neither the EPA nor the pesticide registrants necessarily know precisely what inert ingredients are present in a pesticide, but even if the inert ingredients are known to the EPA, the public is not allowed to know, because the information is trade secret.

The EPA indicates that at least 85 of these inert ingredients are "toxicologically significant"<sup>2</sup> in that they are known to cause cancer, nerve damage, other chronic damage, or reproductive effects in humans and/or laboratory animals.<sup>1</sup> The EPA does not know which of the 45,000 registered pesticides contain these 85 ingredients.

The EPA indicates that the toxicity of another 700-800 inerts are not known, but that these inerts include glycol ethers and petroleum hydrocarbons with "high potential for toxicity."<sup>1</sup> EPA notes that 80% of all pesticide formulations contain petroleum distillates as inert ingredients and these "pose significant regulatory problems... The polynuclear aromatic components of petroleum distillates have a high potential for carcinogenicity and the aliphatic content may pose problems as well."<sup>2</sup>

The 85 inert ingredients already listed by the EPA include asbestos (human carcinogen), benzene (known human carcinogen), cadmium compounds (carcinogenic by inhalation, neurotoxic, chronically toxic to aquatic organisms at 0.1 part per billion, and a bioaccumulator in all aquatic organisms), carbon tetrachloride (carcinogenic, central nervous system depressant, and potential groundwater contaminant that is being cancelled as an active ingredient),<sup>3</sup> and hexachlorophene (contaminated with dioxin, neurotoxic).

Obviously, it is meaningless to say that the "margin of safety for the exposed members of the public for right-of-way routine-realistic scenario, 2,4-DP sprayed on 12 acres" is 39,000 times after eating berries (Table C-65) if the berries are covered with benzene. There is no margin-of-safety table in this EIS that means anything in light of the fact that neither the BLM nor the public knows what is in any of the pesticide formulations.

The BLM will simply have to scrap all tables and all quantitative risk estimates of the hazard of these pesticides based on any testing that does not include the inert ingredients (i.e., intentionally added inerts as well as contaminants in combination with the active ingredient(s)).

NCAP and its member organizations and individuals have been saying for years that the federal agencies do not know the hazards posed by these pesticides because (a) inert ingredients are present (e.g., Ruth Shearer pointed out in the NCAP v. Block case that a surfactant in Roundup appeared to be more toxic to fish than the active ingredient, glyphosate); (b) health damage testing on the active ingredients is incomplete, fraudulent, and/or flawed; (c) pesticides are sprayed in combinations that have not been tested for synergism; (d) testing is not done on chemically sensitive or young or ill animals; and (e) pesticides are already present in our soil, water, bodies, and air, combining in unknown ways with the pesticides the agencies spray. The issue of toxicologically significant inert ingredients merely places this uncertainty in undeniable form.

If these uncertainties indicate that quantitative risk assessments are meaningless (and NCAP contends they do), then the BLM must abandon attempts at quantitative risk assessment of their pesticides. Numbers are not magic: if nothing is known about 30% - 95% of a pesticide formulation except that it might contain extremely toxic chemicals, then numbers cannot be cooked up to look like the toxicity of that pesticide is understood.

The BLM needs to prepare a new Draft EIS (not just Supplement), employing on the writing team people who understand the toxicological uncertainties surrounding pesticides, who comprehend the limitations data place on quantitative assessment, and who understand that public lands can be managed without depending on unidentified chemicals of unknown toxicity.

This latter is the major claim that NCAP wishes to make in these comments.



Specific Comments

NCAP had hoped to make comments on specific Supplement statements and classify each statement/comment under the NEPA regulation violated by the statement in question. Time has run out and we cannot do that today, but the following NEPA regulations are those that are most frequently violated by this Supplement:

- 1) 40 CFR 1502.1: Statements must be supported with evidence that the agency has made the necessary environmental analyses; and  
  
The EIS must provide a full and fair discussion of significant environmental impacts.
- 2) 40 CFR 1502.16: The EIS must provide a full discussion of significant environmental impacts, including both direct and indirect effects.
- 3) 40 CFR 1502.21: The EIS must not incorporate by reference material that is not reasonably available for inspection by the interested public during the comment period.
- 4) 40 CFR 1502.22: (April 25, 1986 version as well as the original version): The EIS must make clear that there is incomplete or unavailable information regarding reasonably foreseeable significant adverse effects;  
  
The EIS must state the relevance of the incomplete or unavailable information to evaluation of reasonably foreseeable significant adverse impacts; and  
  
The EIS must evaluate such impacts.
- 5) 40 CFR 1502.24: The EIS must make explicit reference by footnote to the scientific and other sources relied upon for conclusions; and  
  
The EIS must insure the professional integrity, including scientific integrity, of its discussions and analyses.



SUPPLEMENT TO THE DEIS  
(pp. 1-13)

BLM 1. The BLM claims that to fill all the basic toxicological data gaps would be exorbitant and so a worst case analysis will be done. (p. 1)

NCAP 1. The BLM has not looked at the possibility that filling some data gaps, particularly gaps in knowledge about the field use of the herbicides, might not be exorbitantly expensive. The BLM cannot claim exorbitance by looking only at basic toxicological data gaps and by looking only at filling all data gaps.

Some research that the BLM might fruitfully and feasibly undertake includes:

(a) Measuring offsite plant residues. Plant residues had to be estimated for the risk analysis, L-60 and this is listed as a data gap on L-17. Such studies are not expensive.

(b) Doing a survey to assess the validity of spill reporting for estimations of probability of spills. It is hard to believe that in eleven years, pesticides were spilled only 24 times by the Forest Service and BLM (the sources are not cited for this figure) L-80.

(c) Measuring persistence of the herbicides on plant surfaces. The BLM indicates "...[S]pecific data were not available for most of the 16 herbicides regarding persistence on plant surfaces" L-63.

(d) Doing field studies on the public's exposure to the pesticides. The BLM indicates that because "no field studies existed on actual doses to the public comparable to those used for estimating worker doses, public doses were estimated..." (p. 4) This is the kind of data gap that is properly addressed by the BLM in the context of their program. It is not the type of study that is required of a pesticide registrant. Costs of such a study could easily be documented, based on the worker studies cited. This is precisely the kind of data gap the public is often most concerned about.

Until the BLM indicates that it has (a) considered some research other than basic toxicological research that fills data gaps indicated by the BLM in their risk analyses, (b) documented the costs of some of this other research, and (b) filled some data gaps as opposed to all data gaps, NCAP regards the BLM claim of exorbitance unfounded.

BLM 2. The BLM indicates that uncertainty regarding cancer is the trigger for analysis of impacts under 40 CFR 1502.22. (p. 1)

NCAP 2. This is false. There is a great deal of uncertainty regarding a whole range of impacts of these herbicides. The BLM fails to lay these data gaps out (see Attachment A for data gaps as identified in the registration standards for 8 of the herbicides. Read the Interior Board of Land Appeals decision on an appeal brought by Idaho Natural Resources Legal Foundation, August 28, 1985 (IBLA 85-527).

BLM 3. The BLM indicates that "uncertainties and data gaps were identified, including...the potential for amitrole, asulam, picloram, and glyphosate to cause cancer..." (p. 2)

NCAP 3. Positive carcinogenicity results have been obtained for each of these four herbicides (see Table 3-4). Those are not data gaps.

On the other hand, the BLM indicates on L-37 that no adequate oncogenicity studies exist for dicamba and diuron. These are data gaps.

Diuron is closely related to linuron, a suspected carcinogen, and so it is reasonably foreseeable that diuron is a carcinogen.

Dicamba contains nitrosamines as contaminants and nitrosamines are potent carcinogens. <sup>11</sup> According to the EPA registration standard for dicamba, the manufacturing process has potential to result in traces of some isomers of dioxin.

List dicamba and diuron as having data gaps for cancer.

BLM 4. Table 3, p. 3.

NCAP 4. Atrazine is given a cancer potency of zero, but the BLM reference given for atrazine carcinogenicity (EPA

1984c) makes no statement that atrazine is nononcogenic for the 2 "supplementary" studies by IBT or the 1 "supplementary" study by Hazelton Laboratories. You can't have a cancer potency of zero if you don't have an adequate cancer study.

Diuron cannot have a cancer potency of zero; no adequate oncogenicity studies exist.

Dicamba cannot have a cancer potency of zero; no adequate oncogenicity studies exist.

Fosamine cannot be given a cancer potency of zero; no oncogenicity studies are listed.

What do the 0, 25.0, 750.0 and 0 belong to that are above glyphosate's line?

What do the 5 and 0 belong to below diuron's line?

In a 1982 summary of glyphosate studies on file, EPA indicates the systemic NOEL found in Biodynamics study #77-2062 is 3.0 mg/kg/day.<sup>4</sup> In its 1984 summary of the same study, a systemic NOEL of greater than 31 mg/kg/day is stated.<sup>5</sup> NCAP has a Freedom of Information Act request into EPA regarding this discrepancy. BLM indicates the NOEL is 30 mg/kg/day. Perhaps BLM should look into this discrepancy as well.

What is the 24,40 for fosamine?

BLM 5. Table 4, p. 4.

NCAP 5. Secondary sources are cited here and throughout the Supplement. If these studies are available to the public, then they should be listed with superscripts referenced to an extensive list in the back of the Supplement. If these studies are not available to the public, then the BLM cannot rely on them.

It is improper to state that dicamba and diuron are nononcogenic in inadequate studies. If a study is inadequate, it has not shown anything.

Your bias shows in this table: you say picloram is nononcogenic in 3 of 5 studies. Why not say it is oncogenic in 2 studies? That's what people are concerned about.

This table does not substitute for a table that lays out data gaps. A table needs to be supplied that indicates the data gaps that have been identified during the development of each herbicide's registration standard. That is where a pesticide's studies are evaluated for adequacy and where basic data gaps are identified.

Attachment A is a series of pages that summarize individual pesticide registration standards for eight of the pesticides. These pages clearly identify crucial data gaps.

If BLM can do a table like Table 4, it can do a table of what information is missing according to the EPA. Mutagenicity and carcinogenicity are not the only two endpoints of concern.

- BLM 6. The margin-of-safety is determined by dividing an animal NOEL by the estimated human dose. (p. 6)
- NCAP 6. The idea that a "margin of safety" can start at a NOEL (e.g., that a dose two times below a NOEL provides a "margin of safety" of two) is toxicologically inaccurate and no reference is offered for this "methodology." The method commonly employed by regulatory agencies is to reduce the NOEL by a factor of 100 to establish a threshold for humans. This is because it is generally estimated that on a body weight basis, humans are generally about ten times more vulnerable than experimental animals; another generalized estimation is that sensitivity among the general human population varies by about ten times.<sup>6</sup> By taking both of these factors into account, a "threshold" for human "safety" is generally established by reducing the laboratory animal NOEL by two factors of ten (i.e., a factor of 100).
- Your method lacks scientific integrity.
- BLM 7. "...[A]ll of the NOEL's used in this risk analysis are based on (or take into account) long-term multiple exposures during animal studies." (p. 6)
- NCAP 7. No longterm studies exist for fosamine ammonium (EPA 1984j).
- BLM 8. If a person's exposure exceeds the NOEL, "it does not necessarily lead to the conclusion that there will be human toxic effects because all of the NOEL's used in this risk analysis are based on (or take into account) longterm multiple exposures during animal studies. This applies particularly to doses that are not likely to occur more than once, such as those to the public." (p. 6)
- NCAP 8. What happens after three months' exposure can happen after one day.

- BLM 9. Table 5 purports to show margins of safety for the general public. (p. 7)
- NCAP 9. Every figure is 100 times too high; see NCAP 6.
- What does the footnote to Table 5 mean?
- BLM 10. "Reproductive effects are evaluated based on the lowest maternal, fetotoxic, or teratogenic NOEL..." (p. 6)
- NCAP 10. Males can experience reproductive effects such as low sperm count or infertility. This Supplement fails to mention male reproductive effects.
- BLM 11. The BLM summarizes that there are such large margins of safety, "that the public should suffer no adverse effects. This is true for all individuals including pregnant women and sensitive individuals." (p. 6)
- NCAP 11. The margins of safety referred to are in Table 5 and are all 100 times too high (see NCAP 6). The threshold of 100 times below the NOEL will then be exceeded in many routine-worst case scenarios.
- Cite your evidence that exposure to these herbicides should produce no adverse effects for sensitive individuals.
- BLM 12. "...[T]here are no residents, hikers, fishermen, or berrypickers in the vicinity of the vast majority of treatment units." (p. 8)
- NCAP 12. Cite your evidence.
- BLM 13. "Chronic doses of 2,4-D, as predicted by this analysis, could affect the peripheral nervous system which, in most cases, would be a reversible effect." (p. 8)
- NCAP 13. Cite your source.

The EPA's Recognition and management of pesticide poisoning writes, "The medical literature contains several reports of peripheral neuropathy following what seemed to be minor dermal exposures to 2,4-D."

Contrary to BLM's characterization of the damage, peripheral neuropathy may persist many months, it may frequently go undiagnosed, it has happened after single doses, and its occurrence is so idiosyncratic that it may occur to peculiarly sensitive people, or may be due to other toxic chemicals in the formulation. It



involves pain, numbness,<sup>8-10</sup> and/or paralysis of toes, fingers, legs, and arms.

BLM 14. The discussion of sensitive individuals indicates that they could "suffer some acute toxic effects from the worst-case exposures doses for atrazine, 2,4-D, dicamba, and triclopyr." Since atrazine's NOEL is based on weight loss in dogs, "Sensitive individuals could become ill and possible experience stomach problems. Any toxic effects resulting from these routine-worst case doses, however, should be limited." (p. 8)

NCAP 14. This is a totally inaccurate and inadequate picture of the effects experienced by chemically sensitive individuals when exposed to minute amounts of any of a variety of chemicals. Their symptoms are not the symptoms of the NOELs they come closest to: they often experience extreme respiratory distress, fatigue, headaches, etc.

Rewrite this discussion after consulting with someone who has treated and studied chemical sensitivity.

Cite your sources for your discussion of what sensitive people will experience when exposed to BLM herbicides.

BLM 15. Table 6 indicates those situations for which there will be "margins of safety less than 10" for the general public. (p. 9)

NCAP 15. There is no such thing as a margin of safety of 10. The Table 6 figures indicate humans would have crossed a threshold of "safety" 100 times below the NOEL (for the active ingredient). (See NCAP 6.)

BLM 16. When the BLM estimates that a NOEL for diuron could be crossed (for some unstated effect in some unidentified study), it says "This means that unprotected sensitive workers could experience some toxic effects from routinely applying these herbicides in certain situations." (Emphasis added, pp. 9-10)

NCAP 16. Since the BLM does not indicate precisely what numbers are used to estimate worker exposure and precisely what studies it is basing these estimates on, how do we know that the estimate is not based on workers that had protection?

If the NOEL is crossed by average workers, why would it be "sensitive" workers that might experience toxic effects?

- BLM 17. The BLM indicates that worker margin of safety (MOS) values for diuron, 2,4-D, and triclopyr are less than 100 for routine-realistic doses. (p. 10)
- NCAP 17. The BLM does not identify the kinds of health damage for which the workers are at risk when their MOSs "are less than 100" and thereby fails to inform decisionmakers of potential impacts.

Even short-term skin exposure to dilute 2,4-D has in some cases resulted in severe peripheral neuropathy<sup>7-9</sup> involving pain and paralysis in limbs (see NCAP 13.).

Diuron contains, as a contaminant, 3,3',4',4'-tetrachlorazobenzene (TCAB). TCAB has the same potential as 2,3,7,8-tetrachlorodibenzodioxin (TCDD) to cause chloracne (i.e., at 0.5 micrograms).<sup>12</sup> Chloracne is the severe, disfiguring skin disturbance that has been suffered by some of the people exposed to Agent Orange (containing TCDD) in Vietnam and by people living near the Seveso, Italy 2,4,5-T factory whose pipe ruptured, sending a cloud of dioxin (TCDD) into the air.

Nowhere in the EIS is this problem of diuron described. Instead, the BLM (or more precisely, Labat-Anderson) has reduced all health effects to numbers. Numbers for NOELs whose health damage is not spelled out, whose studies are not referenced. Numbers for margins of safety that are meaningless because they do not consider the whole pesticide formulation with its inert ingredients. Numbers for doses to people and workers that are unreviewable because the BLM doesn't say precisely what numbers went into precisely what formula from precisely what studies to derive those doses. The whole thing is a sham. Workers are concerned about pesticides like diuron because they might get chloracne, not because their exposure to diuron is "an MOS value that is less than 10 in the routine-realistic case."

No registration standard has been issued for triclopyr, so the EPA has not even gone through the files of triclopyr to review the adequacy of the chemical companies' health damage studies or to identify data gaps. When, as the BLM points out, triclopyr "has at least 2 margins-of-safety for workers (including those for backpack sprayers) that are less than 100," what kinds of damage are those workers at risk for?

Describe risk in plain English, not meaningless numbers.

- BLM 18. "In the case of a spill of a pint of concentrate [on workers' skin], many of the doses approach the LD 50. This represents a clear risk of severe toxic effects providing the herbicide is not washed off." (p. 10)
- NCAP 18. Who are you kidding? An LD<sub>50</sub> is the dose that kills half of a test population. Approaching an LD<sub>50</sub> represents a clear risk of death.
- BLM 19. "(Note: Cancer risks computed for the sum of the BLM and Forest Service programs are portrayed in this section.)" (p. 10)
- NCAP 19. What does this mean? Sum of acres? Years? Pesticides?
- BLM 20. Table 7 p. 11
- NCAP 20. The margins of safety, according to the table's title, are based on the systemic NOEL. Is this the lowest known NOEL for (the active ingredient) of all of the herbicides? The dicamba reproductive NOEL, for instance, is cited by the BLM as being lower than the systemic NOEL (Table 3-2, L-31). Which NOEL for dicamba was used in Table 7?

#### RISK OF HERITABLE MUTATIONS

- BLM 21. "Risk of Heritable Mutations" on p. 13 summarizes the risk of genetic damage for all the herbicides.
- NCAP 21: This section, like the longer section on which it is based ("Mutagenicity of the 16 Herbicides," L-25 -L-38) are fraudulent. The following eight comments (NCAP 22-NCAP 29) deal with the section on p. 13.
- BLM 22. "No human studies are available that associate any of the herbicides with heritable mutations."
- NCAP 22. This is entirely misleading if no human studies have been done to associate any of the herbicides with heritable mutations.

What kinds of studies are you talking about? What would they consist of?

BLM 23: "...[G]lyphosate tested negative for mutagenicity in all assays conducted, and thus can be considered to pose no mutagenic risk." (p. 13)

NCAP 23. Glyphosate has been shown to cause a significant increase in the number of sister chromatid exchanges (SCEs) in human white blood cells.<sup>13</sup> This type of test is listed in Table 3-3, L-36.

Having been shown to be carcinogenic, glyphosate would be suspect for mutagenicity.

BLM 24: "Fosamine, hexazinone, and triclopyr were nonmutagenic in the great majority of assays conducted....therefore, it can be assumed that their mutagenic risk is slight to negligible." (p. 13)

NCAP 24: The statement that somehow mutagenic risk is determined by majority vote among mutagenicity assays is made many times throughout this Supplement and it is absolutely contrary to standard toxicology and violates NEPA regulations regarding scientific integrity.

A battery of mutagenicity assays is done on pesticides because any one chemical is likely to cause only one type of mutagenicity and any one assay detects only one type of mutagenic activity. If a chemical causes point mutations, for instance, but does not cause chromosomal aberration, unscheduled DNA repair, sister-chromatid exchanges, etc., it is still a mutagen.

Triclopyr was positive for dominant-lethal effects in rats, indicating it has the potential to reach the gonads (USDA 1984).

Both fosamine and hexazinone were found to be positive for chromosome damage in hamster ovary cells (USDA 1984).

Eliminate all statements that imply mutagenic risk is a matter of how many types of mutagenic activity are detected. It only takes one kind of mutagenic action to cause genetic damage and there is no safe dose for a mutagen.

BLM 25: "The probability that dalapon or diuron would cause heritable mutations is low because they have not been shown to cause cancer in any long-term studies." (p. 13)

NCAP 25: This is another statement frequently made in this Supplement that utterly defies toxicological science. A chemical can be a mutagen without cancer being induced.

Eliminate all statements that imply a noncarcinogen is likely to be a nonmutagen.

Moreover, the statement is fraudulent in terms of dalapon: Dalapon has no oncogenicity studies on file with the EPA (EPA 1984g) and none are cited by this Supplement. The only thing that can be said about dalapon with any scientific integrity is that there is uncertainty about dalapon's mutagenicity and carcinogenicity potential because no information exists.

BLM 26: "The lack of positive results in any mutagenic or oncogenic tests with diuron suggests that diuron would present only minute risk to humans as a mutagen." (p. 13)

NCAP 26: This statement is fraudulent. Diuron has no mutagenicity studies on file with the EPA. None are cited by the BLM. The reference to "oncogenic tests" is deceitful: There is one oncogenicity test on file with the EPA and no core grade has been given the study, indicating that the EPA has not yet reviewed it for its adequacy. The registration standard for diuron (9/30/83) indicated 0 oncogenicity tests on file, and 2 required.

BLM 27: "Atrazine tested positive for mutagenicity in 15 of 33 assays.... However, many of the positive results were achieved through tests that may not be relevant to evaluating mutagenic risk in humans. Some positive results in rodents were also achieved, but these responses were only observed at levels greater than 1,500 mg/kg body weight. These are exceptionally high dose levels and suggest that the degree of germ cell hazard from low levels of atrazine would be minimal at worst." (p. 13).

NCAP 27: If it weren't so disgusting scientifically and so sad in terms of BLM's contempt for human danger, it would be amusing to note how the BLM discounts all risk, no matter how grave. Here we have an herbicide that BLM states is mutagenic in 15 assays, and the BLM excuses it by saying many of the positive results were achieved through tests that may not be relevant to humans and that the degree of germ cell hazard would be "minimal at worst."

All mutagenicity tests are relevant to humans because DNA is similar in all living organisms, and what



affects the DNA of one creature should affect that of all.

Cite your evidence in the toxicological literature that any mutagenicity tests are not relevant to humans and that the particular tests done on atrazine may not be relevant to humans.

Atrazine is of great concern to people because it is activated into a mutagen in plants. Once activated, atrazine has caused mutations in yeast, a plant, a fly, and mammalian cells.<sup>14-16</sup> It has been found to be mutagenic in bacteria injected intravenously and recovered from mice<sup>17</sup> treated with single or multiple doses of atrazine.

The BLM statement that germ cell hazard is probably minimal is belied by BLM statements on L-38: "Three...positive responses were in tests with the fruit fly that measured gene mutations in germ cells. Positive results were also obtained in tests with mice which measured chromosome alterations in germ cells. Positive responses in these types of assays indicate a potential for mutagenic hazard." (Emphasis added.)

There is a human study that is of concern and the Supplement fails to cite it, either for atrazine, 2,4-D, or amitrole, anywhere in the Supplement: Agricultural workers exposed predominantly to 2,4-D, amitrole, and atrazine were found to experience a 25-fold increase in chromatid breaks and a 4-fold increase in chromatid gaps during<sup>18</sup> mid-season as opposed to off-season times of the year.<sup>18</sup> Atrazine has been shown to cause chromosome breaks in mouse bone marrow.<sup>19</sup>

BLM 28: "A number of comprehensive reviews of the 2,4-D mutagenic data have indicated that it does not pose significant risk of human gene mutations." (p. 13)

NCAP 28: Cite these numerous "comprehensive reviews."

The only review cited on L-38 (concluding that although 2,4-D has been shown to be mutagenic it is "without significance as an environmental mutagenic hazard") is Newton and Dost (1981). Neither of these men are toxicologists, they are known for their defense of pesticides in general, and Frank Dost, at least in the past, has been notorious for his rather scientifically isolated position of maintaining that there are safe doses for carcinogens.

Notwithstanding BLM's count of 2,4-D being positive in eight mutagenicity assays (USDA 1984) in Table 3-4 (L-37), 2,4-D has been found positive in 15

mutagenicity assays (USDA 1984). What kind of evidence is needed for BLM to consider that a pesticide poses risk of mutations for humans?

BLM 29: "Based on a worst-case estimate, the risk of heritable mutations from [2,4-D and picloram] would be no greater than the cancer risk."

NCAP 29: Cite your evidence for this statement from toxicological literature (and not a personal communication from David Brusick, please). There are chemicals that can be mutagenic without causing cancer. I am not aware that cancer risk (whatever that is, given the uncertainties of extrapolation from animals) is considered a measure of mutagenic risk in the scientific community.

If you can't cite evidence for this theory, drop it from the Supplement. I'm under the impression it is not based in the general toxicological literature.

#### SYNERGISTIC EFFECTS

BLM 30: "It is possible but unlikely that synergistic effects could occur as a result of exposure to two or more of the herbicides considered in this analysis." (p. 13)

NCAP 30: There is no evidence for this statement and the BLM cites no evidence here, or on L-89 ("Synergistic Effects"). It is particularly meaningless in the absence of information about the inert ingredients present in each of the pesticide formulations.

In its registration standard for picloram, the EPA notes that a human sensitization study indicates the combination of 2,4-D and picloram is capable of producing sensitizing reactions which neither of the herbicides produce singly.<sup>20</sup>

A Dow Chemical Company study found that whereas sheep are not harmed by 30 daily doses of 72 mg/kg picloram, some sheep are killed by five daily doses of 36 mg/kg picloram mixed with 134 mg/kg 2,4-D.<sup>21</sup>

The BLM notes atrazine and simazine in the combination, Folgard S, indicated carcinogenicity in one test and concluded that synergism is a possibility.

Remove the statement that synergism is unlikely unless supporting evidence in the scientific literature is cited. (An article in the trade magazine, Farm

Supplier, by longtime Dow worker and 2,4-D proponent WR Mullison, is not an appropriate reference. L-89.)

BLM 31: "EPA has considered the possibility of synergistic effects in these cases [i.e., combinations of herbicides used by the BLM] and found that the risk is not significant." (p. 13)

NCAP 31: (a) Which combinations are being considered?

(b) No reference is given here or on L-89 for this statement. Remove it if you cannot cite evidence that the EPA has in fact "considered the possibility of synergistic effects" among the combinations.

#### CUMULATIVE EFFECTS

BLM 32: "No one individual member of the public is likely to receive repeated exposures to any of the herbicides..."

NCAP 32: This entire discussion of cumulative effects, in defiance of NEPA, makes no mention of the fact that the public is exposed to all kinds of pesticides repeatedly and in fact carry residues of some of the pesticides in their bodies. You are not spraying into a pristine environment.

The comments of Carol Van Strum and Paul Merrell submitted to you for this Supplement (April 28, 1986) document some of the evidence available that must be considered when considering the effects of adding more herbicides to the environment.

BLM 33: The BLM indicates that agriculture and related commercial operations exceed BLM and Forest Service operations from year to year, making any cumulative effects from the BLM program negligible.

NCAP 33: While this argument is attractive in terms of avoiding responsibility, it has no validity biologically. Cumulative impacts are cumulative and for any one person, the straw that breaks their back can as easily be a tiny one as a large one.

This is not a minor technical point. The reason a large number of people are opposed to chemical forestry is because they are concerned about all unnecessary additions of toxic chemicals into their world whose

chemical poisoning is chronicled in the media every day.

BLM 34: "Cumulative effects on workers have been considered throughout this analysis."

NCAP 34: (a) The BLM does not cite any of numerous epidemiological studies showing higher incidence of cancer and other chronic and acute damage among pesticide applicators. (See Attachment C for several.)

(b) How has the BLM considered cumulative effects on workers other than for cancer risk?

(c) Two of the three Lavy studies cited by the BLM for worker exposure to herbicides were available to me (the BLM refused to send down a copy of the USDA report, Lavy, Mattice and Norris, 1984 to the Eugene District BLM office or to me directly for review during the comment period). In both Lavy, et al. 1982 and Lavy, et al. 1980, the researchers found that several of the workers came into the study with low levels of herbicides in their urine even though they had not sprayed within two weeks. The researchers were unable to account for this, other than guessing that perhaps the workers' clothes had some pesticide residues on them or they had come in contact with herbicides from their spray equipment. It doesn't matter: the fact is, pesticide applicators are around pesticides all the time and they do not come into BLM programs unburdened with pesticides.

(d) For cancer risk, the BLM assumes that a worker employed 5 years will be exposed from 30 to 70 times. Thirty years' employment is estimated to yield 288-480 exposures. (L-83 -L-84).

Cite evidence for these estimates. A simple survey of pesticide applicators hired for BLM work and Forest Service work will indicate whether they are exposed 6 to 16 or more times a year on BLM and Forest Service projects and in other projects as well. The BLM is constrained by NEPA to consider programs other than its own when determining cumulative impacts. If every employer of humans for pesticide applications considers only the days the applicators work for them, the workers' elevated rates of cancer and other chronic disease will be accounted for by no one.

APPENDIX L:

Human Health Risk Assessment for the  
Use of Herbicides in the  
Vegetation Management Programs of the  
U.S. Forest Service in  
Washington and Oregon and the  
Bureau of Land Management in Western Oregon

WORST CASE ANALYSIS REQUIREMENTS

- BLM 35: The BLM lists 6 data gaps identified by the risk assessment. (L-17)
- NCAP 35: The BLM needs to identify all major health damage data gaps, not just those for mutagenicity and carcinogenicity for all herbicides. For instance, on L-29, it is mentioned that there are no chronic studies for six of the herbicides.
- Attachment A will give BLM a start on a list of data gaps for the 16 herbicides.
- BLM 36: "Worker exposure studies would cost approximately \$200,000 per chemical." (L-17)
- NCAP 36: Document this from worker studies that have been done on a single chemical.
- BLM 37: "The cost of measuring residues in plants and animals would be between \$50,000 and \$100,000 per chemical per plant or animal." (L-17)
- NCAP 37: Document this. Numerous individuals, agencies, and cities have had tests run for residues of a known pesticide following an aerial or other spray program. Document the costs of some of these simple residue tests. NCAP doubts measuring 2,4-D on berries following an aerial spray project would cost \$50,000.
- BLM 38: The BLM indicates synergistic studies would be expensive because there are 120 possible pairs of the 16 herbicides. (L-17)



- NCAP 38: Choose a pair that is priority because of its likelihood or indicated danger\* (e.g., 2,4-D and picloram).
- BLM 39: Filling the data gaps is considered exorbitant. (L-18)
- NCAP 39: Filling all data gaps will always be exorbitantly expensive. Filling priority data gaps will not.
- BLM 40: The BLM estimates \$50,000 to \$100,000 for each mutagenicity test. (L-17)
- NCAP 40: Document this. Dr. Ruth Shearer supervised the conduct of several crucial endothall mutagenicity tests for Seattle Metro for \$30,000 total. These tests settled a discrepancy between chemical company tests showing no mutagenicity and independent studies showing mutagenicity. Mutagenic potential of endothall at very low doses and in tests considered indicative of carcinogenicity ~~was~~ found.
- BLM 41: "The probability of mutagenic activity was based on available cancer data." (L-18)
- NCAP 41: Document the toxicological soundness of this. See NCAP 25.
- BLM 42: "The worst case analysis for synergistic effects assumed that these effects could occur."
- NCAP 42: Where? What analysis of what that might mean took place regarding "these effects"?
- BLM 43: The BLM indicates there is an oncogenicity study with negative results for glyphosate. (L-18)
- NCAP 43: Cite it. The EPA (1984k) reference cited by the BLM as indicating "nononcogenic at HDT" lists no oncogenicity studies. It does cite a feeding study, but that is not an oncogenicity study.
- BLM 44: The BLM indicates there are three oncogenicity studies for picloram that are negative. (L-18)
- NCAP 44: Cite them. The EPA reference given by the BLM (EPA 1984m) cites one positive oncogenicity study and one negative. The Mullison 1985 reference cites the same two studies, plus an invalid IBT study and a feeding

study that has gone 12 months with no indication that tumors have been looked for.

It is distressing (not to say illegal) for the BLM or Labat-Anderson or whoever to falsely report the content of references and cite invalid studies.

BLM 45: The BLM indicates there is a negative oncogenicity study for bromacil. (L-18)

NCAP 45: Cite it. The EPA (1984d) reference notes one positive oncogenicity study. It indicates that there is another feeding/oncogenic study, but gives no oncogenicity results for it. The EPA (1985e) reference was requested by NCAP in a Freedom of Information Act request on March 5 and it has not been sent.

BLM 46: The BLM indicates there are two negative oncogenicity studies for 2,4-DP. (L-19)

NCAP 46: Cite them. The EPA (1984f) reference cited by the BLM lists only two oncogenicity studies: one negative and one positive at all doses tested.

#### HAZARD ANALYSIS

BLM 47: "EPA has compiled 'science chapters' on many of the herbicides (amitrole, bromacil, dicamba, diuron, hexazinone, picloram, and simazine) and these are also available from EPA."

NCAP 47: They are not, at least yet. Dr. Ruth Shearer has had a FOIA request in to the EPA for science chapters on atrazine, amitrole, bromacil, dicamba, diuron, and simazine since February 12, 1985. They have not arrived.

BLM 48: "In no cases were studies used that have been invalidated by EPA." (L-25)

NCAP 48: Wrong. See, e.g., NCAP 44, 67, 70, 71.

BLM 49: The BLM indicates that results of laboratory toxicity tests can be "directly extrapolated to humans with some adjustment made for differences in body weight and body surface area." (L-26)

NCAP 49: No. <sup>In addition,</sup> Adjustments need to be made for species differences (a 10X factor for extrapolation from

laboratory animals to humans and a 10X factor for normal variation in heterogeneous populations). This resulting 100X factor does not account for sensitive individuals. Although the BLM indicates that this toxicity testing discussion is drawn from Doull et al. (1980) and Doull makes it very clear that these two factors need to be considered (p. 23 and p. 26), the BLM never mentions it.

BLM 50: "Subchronic toxicity studies...usually last from a few days to 3 months (3 to 90 days)..." (L-26)

NCAP 50: Subchronic studies last a few weeks to 3 months.

BLM 51: "Chronic studies...normally last 2 to 7 years but generally more than one-half the test species' lifetime." (L-26)

NCAP 51: Cite your reference for this.

There's no such thing as "chronic studies." There are "chronic effects studies" and "chronic testing." Chronic testing includes chronic health effects, oncogenicity, teratogenicity, and reproductive studies. Chronic health effects studies generally last 1-2 years. Oncogenicity studies last more than one-half the test species' lifetime. Teratogenicity studies don't go on 2-7 years. Reproductive studies go for 2 or 3 generations and, depending on the animal, can be completed in less than one year.

BLM 52: "Toxic symptoms displayed by the animals are recorded throughout [acute toxicity studies]." (L-26)

NCAP 52: Cite your reference.

Some acute toxicity studies record grossly obvious symptoms such as whether the animal can't get up on its legs. Most <sup>acute toxicity</sup> studies don't do that.

BLM 53: Table 3-1 is entitled "Acute toxicity classification and acute toxicities of the 16 herbicides and other chemicals," and is a listing of oral LD<sub>50</sub>s. (L-27)

NCAP 53: The title is not accurate. Never talk about "acute toxicity" when you are talking about "acute lethal dose."

BLM 54: Those chemicals listed as of severe toxicity are cited as having an LD<sub>50</sub> of 0-50 mg/kg.

NCAP 54: What chemical kills half a population of test animals at 0 mg/kg?

BLM 55: On p. L-29, two sections are called "Subchronic Toxicity Studies" and "Chronic Toxicity Studies."

NCAP 55: These must be called "Subchronic Testing Studies" and "Chronic Testing Studies."

BLM 56: "Reproduction studies...determine the effect of the chemical on reproductive success as indicated by fertility (production of reproductive cells), fetotoxicity (direct toxicity to the developing fetus), and survival and weight of offspring." (L-29)

NCAP 56: These are inaccurate. The sentence should read, "....fertility (whether or not reproductive cells produce a zygote or embryo), fetotoxicity (weight and litter size at birth), and postnatal survival..."

BLM 57: "Carcinogenicity tests (cancer studies or oncogenicity studies) examine the potential for a chemical to cause cancerous (malignant) tumors when fed in the diet over the animal's lifetime." (L-29)

NCAP 57: Inaccurate. Should read "Oncogenicity tests examine the potential for a chemical to cause benign and malignant tumors..." The observation of benign tumors is generally extrapolated to concern that humans will experience cancer, since benign tumors are often precursors of malignant tumors.

BLM 58: "Threshold Toxicity of the 16 Herbicides" summarizes results of dozens of subchronic, chronic, reproductive, and teratogenic studies. (L-29 - L-35)

NCAP 58: No studies are cited, merely EPA "tox one-liners."

There are no clinical reports discussed for any of the 16 herbicides. Such reports are important, since all of these toxicity tests are performed only on the active ingredient and clinical and epidemiological studies record results of exposure to full formulations.

BLM 59: The EPA describes chronic results for two simazine 2-year feeding studies (rat and dog) and then states EPA has determined that chronic toxicity could not be determined from either of these studies. (L-35)

NCAP 59: If the studies are inadequate for determining chronic toxicity, then don't cite them for chronic toxicity and don't use them in Table 3-2 for "lowest systemic NOEL."

In 1984, the EPA registration standard for simazine indicated that it had zero tests on file for chronic toxicity, oncogenicity, teratogenicity, or mutagenicity. And yet the BLM produces precise numbers for simazine in its 160 margins-of-safety tables.

BLM 60: "Dogs excrete triclopyr at a slower rate than...humans."

NCAP 60: Cite your evidence.

BLM 61: "A systemic NOEL of 30 mg/kg/day [triclopyr] was established for both rat and mouse 2-year feeding studies (EPA 1984p; USDA, 1984)." (L-35)

NCAP 61: No feeding studies are cited in EPA 1984p. In fact, this April 30, 1984 EPA summary of studies on file for triclopyr cites zero chronic toxicity, teratogenicity, mutagenicity, or oncogenicity studies. The only studies cited are acute studies.

All chronic toxicity studies cited in USDA (1984) are referenced to a 1983 Dow Chemical Company "technical data sheet" and the Weed Science Society of America Herbicide Handbook. If these studies cited by Dow on their 1983 data sheet are adequate, why does the EPA have no chronic toxicity tests on file for triclopyr by mid-1984?

It is unacceptable to cite proprietary data and the Weed Science Society herbicide handbook as sources for triclopyr toxicology information.

EPA reviewed a draft of this EIS and the reviewer of the BLM's treatment of triclopyr indicated that BLM would not be able to establish a margin of safety for triclopyr: "[A] margin of safety cannot be established for Triclopyr - the studies used to establish rat oncogenic potential and an ADI were found inadequate (IBT data).... [N]either the 6-month dog subchronic study nor the rat chronic study meet minimum standards and are not adequate to establish an ADI. The



oncogenic potential of Triclopyr, at present, remains unknown." (EPA, 1985d).

Why does the BLM cite the 6-month dog subchronic study and the rat chronic study? Has it reviewed them independently and found that EPA's evaluation of the studies as inadequate is wrong?

Cite the authority for establishing margins of safety for triclopyr among the 160 margin of safety tables. For instance, how did BLM determine that the public would have a margin of safety of 4,500 from eating bird after 40 acres were sprayed with triclopyr with a helicopter? (Table C-123, L-162). Can't we agree that that quantification is inappropriate? Even aside from not having the faintest idea what inert ingredients are in the triclopyr formulation?

BLM 62: The BLM indicates that it doesn't know what symptoms were observed in the diuron dog feeding study it uses for its lowest NOEL. (L-34)

NCAP 62: This illustrates the absurdity of looking only at secondary sources. The BLM is calculating margins of safety from a NOEL in a feeding study whose health damage the BLM knows zero about. The EPA has apparently not evaluated the study because it has not given it a core grade (EPA 1984i). The BLM can't inform the public about the potential effects of diuron because it hasn't looked at any of the studies.

Diuron is the pesticide that contains TCAB, which has the potential of causing chloracne at levels as low as TCDD-caused chloracne (see NCAP 17).

BLM 63: The chronic toxicity studies cited for dalapon are a 1960 study in Agricultural and Food Chemistry and two unpublished Dow Chemical company teratology studies from 1971. (L-33)

NCAP 63: As of 1982, the EPA had zero chronic toxicity, oncogenicity, teratogenicity, or reproduction studies on file for dalapon (EPA, 1984g).

Indicate the data gaps for dalapon.

#### Mutagenicity of the 16 Herbicides

BLM 64: Table 3-3 indicates that tests for detecting primary DNA damage are not applicable to determine human mutagenicity. The reference for this is a personal communication with David Brusick in the 1985 USDA gypsy moth EIS.

NCAP 64: Cite a source other than personal communication with David Brusick for a determination that one entire set of mutagenicity assays is "not applicable" to human mutagenicity. The BLM is under a NEPA obligation to insure that its methodology has scientific integrity. The April 25, 1986 40 CFR 1502.22 speaks of the requirement to rely on "theoretical approaches...generally accepted in the scientific community."

Either cite a published reference in a respected toxicological source for this novel idea or get rid of it.

All mutation tests are relevant to human mutagenicity because DNA is universal among living organisms.

BLM 65: Table 3-4 summarizes mutagenicity and carcinogenicity data on the 16 herbicides. (L-37)

NCAP 65: This table has an extraordinary number of falsehoods in it. Since this is the only table NCAP studied intensively, it brings into question all that BLM cites in this entire EIS. The following 10 comments (NCAP 66-75) refer to this table.

BLM 66: Amitrole: "Nonmutagenic 63/69 assays (USDA 1984); Amitrole does not present potential for heritable genetic effects (EPA, 1985a)."

NCAP 66: Amitrole: Mutagenic 11/62 assays (USDA 1984). EPA (1985a) has not been made available to NCAP despite a March 5, 1986 FOIA.

BLM 67: Asulam: "Nonmutagenic in 3 assays (EPA, 1984b)."

NCAP 67: Asulam: Nonmutagenic in one assay; the other two assays have been judged invalid (EPA, 1984b).

BLM 68: Atrazine: "Mutagenic in 15/33 assays (EPA, 1984c)."

NCAP 68: Atrazine: Nonmutagenic in 2 assays; 2 other assays judged unacceptable (EPA, 1984c).

Hmm. Perhaps the BLM meant to refer to USDA (1984) in which atrazine was positive in 19/38 assays.

See NCAP 27.

BLM 69: 2,4-D: "Nonmutagenic in 23/31 assays (USDA, 1984)."

NCAP 69: 2,4-D: Mutagenic in 15/44 assays (USDA, 1984).

BLM 70: 2,4-DP: "Nonmutagenic in 4/8 assays (EPA, 1984f)."

NCAP 70: 2,4-DP: Mutagenic in 3/7 assays; an 8th assay judged invalid. (EPA, 1984f).

BLM 71: Glyphosate: "Nonmutagenic in 8 assays (EPA, 1984k)."

NCAP 71: Glyphosate: Nonmutagenic in 7 assays; an 8th assay judged unacceptable, a 9th assay an invalid IBT study (EPA 1984k).

Is the BLM citing the unacceptable study or the invalid study as its 8th?

BLM 72: Hexazinone: "Nonmutagenic in 5/6 test systems (USDA, 1984)."

NCAP 72: Hexazinone: Mutagenic in 1/5 test systems (USDA, 1984).

BLM 73: Picloram: "Nonmutagenic in 9/10 assays (USDA, 1984)."

NCAP 73: All tests cited in USDA (1984) are tests done in 1972-1978. As of 1984, the EPA had zero mutagenicity tests on file for picloram. Why?

BLM 74: Simazine: "Nonmutagenic in 12/14 studies (USDA 1984)."

NCAP 74: Like atrazine, simazine is not mutagenic in the Ames test. However, both atrazine and simazine are mutagenic after plant activation. Simazine has been found to be positive for mutagenicity in bacteria,<sup>22</sup> plants,<sup>23-26</sup> and Drosophila (a fly)<sup>27</sup>. Plewa writes of simazine, "Thus, the majority of data reported in the investigations outlined above indicate that...simazine...induce[s] both mitotic and and meiotic chromosome aberrations and [is] biologically activated into agents that induce point mutations."<sup>24</sup>

Look up these sources and cite them unless you find them unacceptable. If you do, make sure you review all the other 12 nonmutagenic tests, too.

- BLM 75: "Nonmutagenic in 4/5 bacterial and cytogenetic assays (USDA, 1984; EPA, 1985d)."
- NCAP 75: USDA 1984 cites three 1983 Dow Chemical Company studies. The organism is unknown in all three, the bacterial assay system is unspecified and the cytogenetic assay is unspecified. So how does Irving Mauer of the EPA write in his review of this DEIS (EPA, 1985d) that "In addition, we show negative BM cytogenetics, and negative bacterial repair"? How does Irving Mauer, let alone the BLM, know the two bacterial assays are different and the two cytogenetic assays are different?

Why, if the studies are 1983 Dow Chemical Company studies, are there zero mutagenicity studies on file for triclopyr at the EPA as of the April 30, 1984 update of the file? (USDA 1984p).

This Table 3-4 is a disaster. So is its interpretation.

- BLM 76: "EPA has determined that amitrole does not present a potential for genetic effects. The chemical induced transformations in four in vitro assays with mammalian cells (EPA, 1985a). EPA has stated that these results support cancer potential, but not necessarily mutagenic potential." (L-36)
- NCAP 76: EPA (1985a) has not been provided to NCAP although it is referenced in this DEIS and NCAP requested it via FOIA on March 5. NCAP is anxious to learn how an herbicide that is positive in 11 mutagenicity assays does not present a potential for genetic effects. NCAP will also be interested to learn how amitrole can cause cancer, but not genetic damage.
- BLM 77: "Although these results [i.e., positive in a number of mutagenicity assays including alterations in mice germ cells] show that atrazine must be viewed as mutagenic at high levels of exposure, the degree of hazard to humans from low levels of exposure would be minimal." (L-38)
- NCAP 77: Cite your source for discussion of high levels of exposure and estimation of minimal hazard. Atrazine is cited as being positive in 19 assays in USDA 1984.

Sudden Finish

With time running out and a headache from sitting 15 hours straight at this computer, NCAP respectfully bows out of continuing a point-by-point review of this DEIS. The following general warnings about the rest of this EIS are offered:

1. The text discussion of the herbicides' mutagenicity and carcinogenicity is unsupportable by the evidence cited and is unsupportable by standard toxicological thought.
2. The carcinogenicity half of Table 3-4 is as flawed a piece of reporting as the mutagenicity half. (E.g., See NCAP 43-46).
3. The cancer potency presentation is unreadable and no formulas are given so that the public can determine how the cancer risk is ultimately determined using all factors.
4. The exposure analysis makes numerous statements that cannot be made without direct reference to supporting evidence.
5. The exposure analysis indicates various factors that are purportedly taken into account but variously fails to indicate
  - (a) the exact numbers that were plugged into the risk analysis for that factor;
  - (b) the sources for the numbers that were plugged in; and
  - (c) the formulas into which the numbers were plugged.

The result is that the exposure analysis is unreviewable.

6. The comparison of exposure to hazard to estimate risk is for nought if the inert ingredients and their toxicity are not plugged in.
7. The risk section inadequately informs the public of impacts because it speaks in terms of numerical margins of safety instead of in terms of specific symptoms.
8. A major source of information regarding risk from these pesticides has been ignored by the Supplement: reports of damage that have been recorded following exposure



to these pesticides in the clinical literature, in California's state pesticide incident reporting system and in BLM and Forest Service worker files.

7. Critical published experimental literature has not been cited in many instances (see Attachment B, the narrative statement of Ruth Shearer in NCAP v. Block, for a plain English presentation of some of these studies).

The following problems are endemic throughout the DEIS and require that it be reissued as a new DEIS:

1. Many statements are not referenced to supporting evidence.
2. References cited do not support the statements to which they are referenced.
3. Conclusions are drawn using methodology that is not toxicologically professional.
4. Crucial literature has not been located.

NCAP suggests that the BLM reissue its DEIS after a major rewrite because the document lacks basic scientific integrity in its present form. If the BLM feels that it would be helpful for NCAP to complete its point-by-point list of problems with the current Supplement, we will. If BLM feels that it would be helpful for NCAP to provide studies from its files that have not been included in the current Supplement, we will.

NCAP believes it has sufficiently established basic patterns of deficiencies that the BLM can easily continue the same analysis on the second half of this Supplement.

Sincerely,

Mary H. O'Brien

Mary H. O'Brien, Ph.D.  
NCAP Information Coordinator

Attachment A: Excerpts from Appendix A (Summaries of Individual Pesticide Registration Standards by Patrick Hoge and Lawrie Mott In Lawrie Mott. 1986. Pesticide Reregistration: An Evaluation of EPA's Progress. San Francisco: Natural Resources Defense Council.

Attachment B: Narrative Statement by Ruth Shearer in NCAP v. Block (1983): Toxicity of Herbicides Used by Region 6 Forest Service and Oregon BLM.

Attachment C: Moses, Marion. 1986. Epidemiologic Studies of Cancer in Humans Related to Farming, Agricultural Work, or Pesticide Application or Manufacturing Abstracts. Unpublished list of epidemiological studies distributed by National Farm Workers Health Group, Keene, California.

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NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97401 (503) 344-5044

DEC 23 1987

Vegetation Management EIS Team  
Forest Service  
P.O. Box 3623  
Portland, OR 97208

December 19, 1987

Dear EIS Team,

I am writing now a comment that will appear later in our formal comments, but a concern came up Friday, December 18 that I want to inform you about.

NCAP has been intending to comment on the fact that you have not indicated what formulations you intend to use in Region 6, but have only indicated 16 ingredients that may be used to kill plants. As noted in the DEIS, you are aware that these ingredients are mixed with solvents, preservatives, anti-volatility agents, etc. in the full formulation and that is what you actually intend to spray.

On Friday, December 18, I learned from Ralph Lightstone (attorney with California Rural Legal Assistance Foundation and a principal author of AB 954, the Birth Defects Prevention Act in California) that he has recently learned of a major data gap in pesticide registration data.

As you know, most attention has been focused on data gaps in the chronic effects data base (e.g., oncogenicity tests, reproductive effects). Ralph Lightstone has recently learned that in fact the acute toxicity base is almost nonexistent. As you also know, chronic effects studies are performed only on the known ingredients in a pesticide formulation; only three acute toxicity tests (LD<sub>50</sub>, dermal sensitization, eye irritation) are required for registration of formulations. As the enclosed article on farmworker illness from exposure to a particular propargite formulation illustrates, the particular formulation can be of crucial significance as to whether acute (and by extension, chronic) effects will occur.

Ralph Lightstone has learned from someone who is familiar with the toxicological data base being reviewed by the California Department of Food and Agriculture in accordance with AB 954, that an acute toxicity study submitted for a particular formulation will not exist, but be referenced to an acute toxicity study for another formulation. That acute toxicity study for the other formulation will not exist; it will reference

an acute toxicity study for another formulation. This referencing continues until one realizes that the required acute toxicity data base simply does not exist.

Ralph Lightstone indicates that in January, 1988, he and others will request a legislative investigation of this situation. While this relates to the data base available to CDFA, this is generally the same data base available to the U.S. Environmental Protection Agency.

NCAP requests that the Forest Service indicate (1) the formulations it actually intends to use for vegetation management; and (2) the acute toxicity data base available for each of these formulations; and (3) evidence that the acute toxicity tests were done with those formulations and not merely referenced to tests with other formulations.

If in fact the problem is not as great as Ralph Lightstone has been informed, that will be fine: We will have information from the extremely minimal required data on the full formulations. On the other hand, if the acute data base for full formulations is in fact very poorly developed (on top of the chronic effects data base for the full formulations not required and nonexistent), the EIS will need to indicate what data are missing and discuss the relevance of that missing data.

As the authors in the enclosed article (J. of Occupational Medicine 29:409-413) note in the case of the farm workers' dermatitis outbreak, "...the seven-day preharvest interval specified on the Omite-CR label did not allow sufficient propargite degradation to avoid severe dermatitis among the orange pickers... The apparent failure within the CDFA pesticide registration process to recognize that the inert ingredients in the "CR" formulation could result in slower propargite degradation or other adverse change resulted in no additional registration requirements being requested beyond that for Omite-30W.... This episode underscores the importance of inert ingredients and their potential to compromise the safety and health of the worker." (Emphasis added.)

Thank you for consideration of this issue. I am interested in what can be done about this concern.

Sincerely,

Mary H. O'Brien

Mary H. O'Brien

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DEC 23 1987

inert ingredients  
farmworkers  
propargite  
residue

# Outbreak of Omite-CR-Induced Dermatitis Among Orange Pickers in Tulare County, California

L. Duncan Saunders, MBBCh; Richard G. Ames, PhD, MPH; James B. Knaak, PhD; and  
Richard J. Jackson, MD, MPH

*An outbreak of dermatitis cases among 198 orange pickers employed by a Tulare County, California, packinghouse was investigated. Dermatitis was contracted by 114 (58%) of the 198 workers exposed when Omite-CR-treated fields were harvested. The dermatitis occurred predominantly in the exposed areas of the neck and chest. A dose-response association with dermatitis was suggested for Omite-CR exposure, but not for Carzol, Omite-CR + Carzol, or other pesticides. Because no violations of pesticide preharvest intervals or application rates were found, it appears that residue degradation was not given adequate consideration in the registration of Omite-CR, thus compromising the safety of the worker.*

In the period April 30 through May 12, 1986, 114 of 198 orange pickers (six crews) who worked for a citrus packer in Tulare County, California, developed dermatitis thought to be related to Omite-CR (Uniroyal Chemical Company) exposure. These pickers typically worked a ten-hour day, six-day-a-week schedule and had harvested 80 orchards between Jan 1 and May 12, 1986. The dermatitis outbreak was important in both scope and severity. It was the largest outbreak of pesticide-

associated dermatitis reported in California,<sup>1</sup> and one third of the cases reported peeling (exfoliation), indicating severe dermatitis. When the outbreak was reported to the California Department of Food and Agriculture (CDFA) and the California Department of Health Services (CDHS), each agency began independent investigations of the episode. This report presents the epidemiologic investigation conducted by the CDHS, but also incorporates the leaf residue degradation function estimated by CDFA.

The main objectives of the epidemiologic investigation were to document the incidence, severity, and nature of the dermatitis, and any other related morbidity; to establish the relationship between the incidence of the dermatitis and exposure to any pesticides that might have been sprayed on the orange trees; and, to identify other risk factors that might have influenced the incidence of the dermatitis.

## Background

For all cases of suspected pesticide illness, California law, beginning in 1974, has required physicians to file Pesticide Illness Reports (PIRs) with local health departments within 24 hours; these agencies must then notify the CDFA, CDHS, and the County Agricultural Commissioner within seven working days.<sup>2</sup> The PIRs for these 114 dermatitis cases provide basic information for this study as well as an official count of the dermatitis cases.

Between 1974 and 1983, 3,952 confirmed pesticide-associated skin injuries were reported among California workers, 401 of which were attributed to pesticides containing propargite.<sup>3</sup> Propargite is the active ingredient in Omite-30W, a miticide widely used on grapes

From the Division of Field Services, Epidemiology Program Office, Centers for Disease Control, Atlanta, GA (Dr Saunders); and the Community Toxicology Unit, California Department of Health Services, Berkeley, CA (Dr Ames, Dr Knaak, Dr Jackson).

Use of trade names throughout the article is for identification only and does not imply endorsement by the US Department of Health and Human Services or US Public Health Service.

Address correspondence to: Community Toxicology Unit, Hazard Evaluation Section, California Department of Health Services, 2151 Telegraph Way, Berkeley, CA 94704 (Dr Ames, Epidemiologist).

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in California. Propargite is also the active ingredient of Omite-CR, recently formulated for use on citrus; this pesticide had just begun to receive widespread use in Tulare County when the dermatitis outbreak occurred. The dermatitis among the orange pickers was reported to be "almost identical" to the dermatitis seen among grape workers exposed to Omite-30W (personal communication, Tulare County Agricultural Commissioner). Also, Omite-CR was reported to be the pesticide common to the dermatitis cases, although it was determined that each crew was also exposed to formetanate hydrochloride (Carzol, NOR-AM) either as a tank mix with the Omite-CR or as a separate spray. For these reasons, Omite-CR was seen as the probable cause for the dermatitis outbreak, but Carzol, or an interaction between Omite-CR and Carzol, was also considered as a possible cause.

Omite-30W and Omite-CR are wettable powders containing 30% propargite (2-[4-(1,1-dimethylethyl) phenoxy]cyclohexyl-2-propynyl sulfite). Omite has an oral LD<sub>50</sub> in the rat of 2,200 mg/kg, indicating low oral toxicity.<sup>4</sup> Dermal studies in the rabbit, however, have shown second-degree chemical burns when technical grade Omite (100% propargite) was occluded to the skin for 24 hours (data on file with CDFA). Eye irritation from Omite-30W has also been reported among grape workers.<sup>1</sup>

The new formulation, Omite-CR, was developed by changing only the inert ingredients (which are the manufacturer's trade secrets). The stated purpose of this change was to prevent leaf burn when used on citrus by reducing contact between the propargite granules and the citrus leaves through a coating of inert ingredients. A 24-hour reentry and a seven-day preharvest interval are stated on the Omite-CR package label. Omite-CR was used in limited quantities in 1985, and then applied to an estimated 20% to 30% of the 90,000 acres of oranges in Tulare County in 1986 (personal communication, Office of the Tulare County Agricultural Commissioner).

When Omite-CR was submitted to the California Department of Food and Agriculture for registration, attention apparently was paid only to the fact that the active ingredient (30% propargite) remained unchanged, and that the active ingredient did not form compounds with the new inert ingredients. Therefore, the reformulation was deemed a nonsubstantive change. Registration occurred without requiring further data to be developed. No additional health and safety data for the new formulation were supplied by the manufacturer.

Omite-CR was registered as a nonrestricted pesticide in California. This allowed growers to buy the compound and use it without filing a plan or seeking prior approval for its use. However, the growers were responsible for following the package label instructions governing the crops on which it may be used, its application rate (pounds per acre), frequency of application, reentry, and preharvest intervals (time between application and harvest), as well as any state and county regulations governing its use.

In looking for a cause for the dermatitis we considered whether (1) Omite-CR alone was responsible for the dermatitis; (2) Carzol alone was responsible; or (3) an interaction between Omite-CR and Carzol was responsible. No other pesticides were used in quantity or with consistency in the orchards.

## Methods

The data for the study were collected from several sources. All PIRs submitted from Tulare County covering the period April 1 to May 12, 1986, were obtained. These reports contain the employer's name; the employee's name, age, and sex; the diagnosis, including symptoms and parts of the body affected, tests ordered and treatment given; date of onset of the illness; the date the patient was seen; and the name and address of the physician making the diagnosis. A case was defined as a person who worked for the packing company with a PIR on which a diagnosis of dermatitis with onset after April 1 was recorded.

All pesticide spraying records were obtained for each field harvested, as well as the dates and hours that each crew worked in each field. The data from April 21 through May 9, 1986, were used to examine the time-order relationship between exposure to Omite-CR and onset of dermatitis and to calculate cumulative hours of exposure to Omite-CR, Carzol, Omite + Carzol, and other pesticides.

Daily temperature maximums for January through May were obtained for two weather stations nearby the harvested areas.

Representatives were interviewed from the California Department of Food and Agriculture, the Tulare County Health Department, the Tulare County Agricultural Commissioner, the management of the citrus packinghouse, and Uniroyal Chemical Company, the manufacturer of Omite-CR.

Three of the six crews of orange pickers were interviewed (88 workers) using a standardized questionnaire. All interviews were conducted in Spanish, some using interpreters, others directly in Spanish. The data collected included presence and date of onset of the dermatitis; distribution and nature of the dermatitis; whether or not a physician was seen; body surfaces usually exposed while picking oranges; previous history of dermatitis; recent history of open cuts and wounds; previous atopic history (asthma and other allergic responses); description of any other illnesses, including eye irritations; and, the neck, face, and upper chest of each interviewee were examined for dermatitis.

The CDFA estimated the dislodgeable foliar residue degradation function for Omite-CR from 127 leaf samples taken one to 42 days postharvest from trees in the citrus groves associated with the dermatitis outbreak. The least-squares linear regression equation was:  $Y = 3.597 - 0.084 X + e$  (personal communication, Mr. Clifford Smith, CDFA). In this equation  $Y$  is the dislodgeable foliar residue in micrograms per square centimeter of leaf surface,  $X$  is the days since application, and  $e$  is

the error term. The coefficient of determination is 0.40, indicating that 40% of the variation in dislodgable Omite-CR residues is explained by days since application. (All applications used 10.5 or 12 lb of Omite-CR mixed with approximately 1,000 gal of water per acre.) This function shows a decrease of  $0.084 \mu\text{g}/\text{cm}^2$  of Omite-CR dislodgable foliar residue per day for each day since application. It was employed in our analysis to project foliar residue concentrations on harvest days. Residue-hours of exposure on the harvest day were calculated by multiplying projected residue levels for each field by the number of hours spent harvesting. When a workday was split among several fields and involved multiple exposures to Omite-CR, the residue-hours for each field were summed. Residue-hours for Carzol were not calculated because Carzol does not degrade on citrus foliage.<sup>8</sup> Spearman's rank correlation coefficient ( $R_s$ ) was used to quantify the associations between the percent dermatitis incidence for each crew and crew-based indexes of residue-hours of Omite-CR and cumulative hours of exposure to Omite-CR, Carzol, Omite + Carzol, and other pesticides.

## Results

Exposure to Omite-CR-treated fields began April 26, 1986. The outbreak of dermatitis among these orange pickers started on April 30, 1986, and ended by May 12, 1986, when emergency extended reentry regulations for Omite-CR were introduced by Tulare County (Figure).

Only 4 more cases were reported in the week following the outbreak period. For all crews, Omite-CR exposure preceded the onset of dermatitis; in five of the six crews, repetitive exposure to Omite-CR preceded the onset of dermatitis. The interval between first Omite-CR exposure and first onset of dermatitis ranged from zero to four days.

Of 198 workers, 114 fulfilled the dermatitis case

definition. The number of cases and the incidence rates of dermatitis by crew, based upon the PIR reports, are presented in Table 1. These incidence rates ranged from 23% to 78%. There were eight females among the cases. Eighty per cent were between 20 and 39 years of age. All exposed workers were of Hispanic origin.

Interviews were conducted 2 weeks after the initial onset of illnesses with 88 (95%) of the 93 pickers in three work crews, of whom 57 (65%) reported dermatitis. Some interviewees reported they had the dermatitis, but did not see a physician. Thus, the physician's PIR reports represent an undercount of the actual dermatitis incidence.

The dermatitis occurred most commonly on skin usually exposed during the workday. All workers whom we observed wore cotton gloves, canvas gauntlets from wrist to elbow, long trousers, long-sleeved shirts, and frequently wore hats, leaving only the face and varying amounts of the neck and upper chest exposed. Major dermatitis areas included the neck (81%), chest (42%), and shoulders (35%) (Table 2). In a few persons, dermatitis appeared on the arms, face (usually on the sideburn area), and on the abdomen and thighs.

The pickers with dermatitis reported the initial symptoms to be redness (74%), itching (63%), and burning (60%) (Table 3). The initial phase of the dermatitis was followed by a variable clinical course which included the formation of small papules, small vesicles, weeping, crusting, peeling (exfoliation), and change of skin color (usually hyperpigmentation).

Eye irritation was reported by 23 (32%) of the 88 workers, seven of whom required treatment by a physician. Workers with dermatitis had a higher incidence of eye irritation (37%) than workers without dermatitis (26%). However, this was not statistically significant ( $\chi^2 = 1.19$ ,  $df = 1$ ,  $P = .26$ ).

The amount of exposure per crew to the different pesticides was assembled by the Tulare County Agricultural Commissioner. Each crew was ranked by cumula-

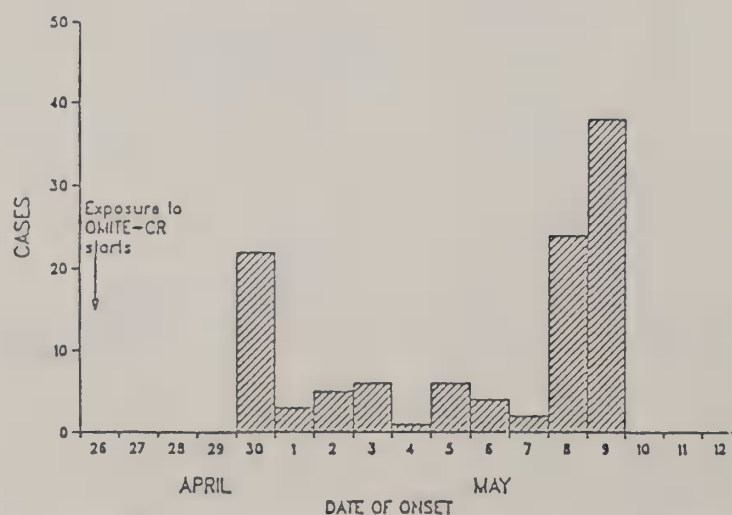


Figure. Dermatitis outbreak among orange pickers, by date of onset, Tulare County, California, April 26 to May 9, 1986.



TABLE 1  
Dermatitis Incidence Rates by Crew

Crew	Total No. of Pickers	Dermatitis Cases*		Dermatitis Incidence Rates (%)
		Before Omite Exposure	After Omite Exposure	
1	36	0	28	78
2	37	0	24	65
3	31	0	18	58
4	31	0	12	39
5	37	0	26	70
6	26	0	6	23
All crews	198	0	114	58

\* Source: The 114 PIR reports filed with the state of California.

TABLE 2  
Dermatitis Site in 57 Interviewed Workers Reporting Dermatitis

Site Reported	Percent Reporting, by Site*	Workers
Face	8.8	5
Neck	80.7	46
Chest	42.1	24
Shoulders	35.1	20
Abdomen	5.3	3
Arms	17.5	10
Hands	0	0
Legs	7.0	4
Feet	1.8	1
Workers reporting dermatitis	—	57

\* Source: Workers in crews interviewed by the California Department of Health Services.

TABLE 3  
Dermatitis Symptoms in 57 Interviewed Workers with Dermatitis

Symptoms Reported	Percent Reporting, by Symptom*	Workers
Redness	73.6	42
Itching	63.2	36
Burning	59.6	34
Peeling	35.1	20
Change in skin color	26.3	15
Papules	17.5	10
Small blisters	15.8	9
Weeping	15.8	9
Crusting	10.5	6
Large blisters	1.8	1
Ulcers	0	0
Workers reporting dermatitis	—	57

\* Source: Workers in crews interviewed by the California Department of Health Services.

tive hours of Omite-CR, cumulative hours of Carzol, cumulative hours of Omite-CR + Carzol, and cumulative hours of other pesticides. Both indexes of Omite-CR exposure, namely residue-hours and cumulative hours of Omite-CR exposure, correlated in the predicted direction with dermatitis incidence;  $R_s = 0.60$  and  $0.43$ , respectively. Cumulative hours of Carzol exposure were less highly correlated with dermatitis incidence,  $R_s = 0.32$ . An inverse association between cumulative hours of exposure to pesticides other than Omite-CR and Carzol was found,  $R_s = -0.60$ . Note that this correlation indicates that crews with higher exposure have lower

incidence of dermatitis. The strength of association between Omite-CR + Carzol exposure and dermatitis incidence is similar to the association with Omite-CR alone,  $R_s = 0.43$ .

No statistically significant associations were found between dermatitis and sex (Fisher's exact test, two-tailed,  $P = .51$ , interview data), age ( $X^2 = 8.42$ ,  $df = 5$ ,  $P = .13$ ), or previous history of dermatitis ( $X^2 = 0.05$ ,  $df = 1$ ,  $P = .86$ , interview data).

During the period of exposure to Omite-CR, April 26 through May 12, 1986, maximum ambient temperatures on harvest days when dermatitis occurred averaged one or two degrees higher than on days when dermatitis did not occur. High temperatures during this period ranged from a low of 66 to a high of 86°F.

## Discussion

Omite-CR was identified as the probable cause of the dermatitis outbreak among orange pickers in this Tulare County episode based upon the following pattern of evidence:

1. No cases of dermatitis occurred before exposure to Omite-CR. When exposure did occur, incidence rates per crew ranged from 23% to 78%. When exposure stopped due to an extended reentry period for Omite-CR-treated fields, so too did the outbreak of dermatitis. Dermatitis occurred in one crew exposed to Omite-CR prior to exposure to Carzol.

2. A dose-response relationship was suggested between the crew-based measures of Omite-CR exposure and the incidence rates of dermatitis in the six crews using two measures of exposure. Residue-hours of Omite-CR, which also is a measure of exposure to dislodgeable residue over and above that obtained through a knowledge of simple cumulative hours of exposure, correlated even more strongly with the incidence of dermatitis than did the latter, thereby strengthening a dose-response interpretation. Measures of individual exposures were not available, therefore crew-based measures were used.

3. The biologic plausibility for Omite-CR to cause dermatitis is suggested by the report of a rabbit dermal occlusion test in which technical grade Omite (100% propargite) produced second-degree chemical burns when occluded to the skin for a 24-hour period. Addi-

tional support is found in numerous PIR reports; 401 cases of dermatitis associated with exposure to propargite were recorded in California from 1974 to 1983.<sup>1</sup>

4. Other exposures and factors did not appear to edict dermatitis. Neither Carzol alone, nor other pesticides, nor a past history of dermatitis, were strongly associated with current dermatitis outcome. The association between Omite-CR + Carzol and dermatitis incidence was similar to that of Omite alone. A synergistic effect of Omite and Carzol is thus not supported by the data. Higher temperatures may play a minor role in the dermatitis; however, the temperatures were not excessive during the outbreak period and days on which dermatitis occurred were only one or two degrees higher than days on which it did not occur. Although it is possible that unknown factors might provide explanation of dermatitis, the factors examined represent the major alternative etiologic hypotheses.

The site of dermatitis is consistent with direct contact with foliage, possibly repetitive, or accumulation of pesticide residue dusts in skin crevices with a focal area in the suprasternal notch, or entrapment by clothing such as the elastic arm bands of the gauntlets worn around the arms to protect against abrasion.

Based upon the evidence produced by this study, it appears that the seven-day preharvest interval specified on the Omite-CR label did not allow sufficient propargite degradation to avoid severe dermatitis among the orange pickers, especially in situations such as this where workers had as much as 60 hours of exposure per week.

The apparent failure within the CDFA pesticide registration process to recognize that the inert ingredients in "CR" formulation could result in slower propargite degradation or other adverse change resulted in no additional registration requirements being requested

beyond that for Omite-30W. The manufacturer was aware that the product would be long-lasting, however, based upon a recent magazine advertisement describing Omite-CR as having "4 to 12 weeks of residual action."<sup>2</sup>

Because no apparent violations of preharvest interval, application rate, or regulation occurred, it appears that foliar residue degradation time on citrus was not given adequate consideration in the registration of Omite-CR. This episode underscores the importance of inert ingredients and their potential to compromise the safety and health of the worker.

## Acknowledgments

We would like to express appreciation to Mr Clyde Churchill, Agricultural Commissioner, and staff, Tulare County; Dr James Pendleton, Health Officer, and staff, Tulare County; and Dr Keith Maddy, Chief, and staff, Worker Health and Safety Branch, CDFA, for their cooperation and help during the investigation.

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## Transforming a Critical Judgment

While mothers and daughters usually struggle with problems of being too intertwined, what seems to characterize the father-son relationship is difficulty bridging the gap between them. . . .

There is so much affection . . . between fathers and sons that is repressed. . . . When a son grows up and wants to get close to his father, one of the things he's afraid of is his own sadness and yearning. . . .

Freud said the death of his father was the major loss in his life. It's not uncommon for fathers to die before relationships are worked out. The son then enters into a period of grief. Numbers of men . . . think about their fathers every day, even long after they have died. Some men continue to work on the relationship after the death. The relationship can still be healed then, though it's harder, . . . but the task is the same—transforming that inner memory we carry around of our fathers from critical or judgmental to caring and nurturing.

—From "Horizons: Each Father Shapes the Life of a Son in a Different Way," a conversation with Samuel Osherson in *US News and World Report*, June 16, 1986.



# NORTHWEST COALITION for ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

December 22, 1987

The enclosed letter regarding testing for glyphosate (Roundup, Rodeo) residues should be of interest to you. There is no publicly available test for the residues. This means that when glyphosate is sprayed, the public does not have ready access to labs that can test for whether the residues are present in their water, bodies, etc. This raises an important public health issue.

NCAP is currently seeking access under the Oregon Public Records law to the agreement signed by the Oregon Department of Agriculture and Monsanto regarding permission to test for glyphosate residues.\*

Of additional interest to you may be the statement by a Monsanto representative at an Environmental Appeal Board hearing in Vancouver B.C. on November 21, 1987 that there is no method currently available to test for the primary metabolite of glyphosate, aminomethylphosphonic acid (AMPA).

*Mary H. O'Brien*

Mary H. O'Brien  
Information Coordinator

*Red*  
*1/4/88*

\*We will also be seeking access to the methodology under the Federal Insecticide, Fungicide and Rodenticide Act 7 USC 136h(d)(1).

RECEIVED JAN 21 1987



*Oregon Department of Agriculture*

635 CAPITOL STREET NE, SALEM, OREGON 97310-0110

December 18, 1987

Ms. Mary O'Brien  
Northwest Coalition for Alternatives  
to Pesticides  
P.O. Box 1393  
EUGENE OR 97440

Ms. O'Brien, thank you for your recent letter regarding analytical procedures for glyphosphate.

There are analytical procedures for glyphosphate in water and other matrices. There is a high performance liquid chromatographic method with a minimum detectable level of less than 1 ppb for glyphosphate in water. Additionally, there is a significantly more time consuming gas liquid chromatographic method for glyphosphate in water with a minimum detectable level of approximately 1.0 ppb. Modifications of one or the other of these methods can be used for soil, foliage, tissue, blood or urine with, however, significantly increased minimum detectable levels (10-50 ppb). Unfortunately, all of these methods are currently proprietary to the manufacturer of glyphosphate, Monsanto Company. Through a signed agreement with Monsanto, we are one of only a few laboratories in the United States that has these methods available for our usage. We cannot, however, provide the methods to other laboratories without prior agreement from Monsanto. Our understanding of the rationale for this approach involves the desire by Monsanto to assure themselves of a laboratory's capability in order to avoid erroneous reporting of glyphosphate residues.

We are aware of the problems with these restrictions, and although it is our definite policy not to compete with the private sector, we will, because of the restrictions with the glyphosphate methodology, occasionally perform glyphosphate analyses for outside parties if there is a special or critical need. We also will refer private laboratories to our contact at Monsanto, but, of course, the final decision to provide the methodology is the company's.

I hope this information is of assistance to you. If there is further information that we can provide you with in this regard, please let us know.

H. Michael Wehr, Ph.D.  
Administrator  
Laboratory Services Division  
Pesticide Analytical and Response Center  
(503) 378-3793

rcL22P



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NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

EIS Team  
USFS  
P.O. Box 3623  
Portland, OR 97208

February 15, 1988

Dear EIS Team,

There is something about a deadline that makes one work right up to it until there are no minutes left. As a result, we send you our comments on the Draft EIS at the very last minute and have not taken enough time to write about all the features of the Draft EIS that are of a landmark nature and show the thought, flexibility, sensitivity, and listening that you have put into the Draft.

You have an exemplary set of alternatives, you have taken the incredible step of looking at the quality of information that is available, you have admitted again and again to not knowing for sure about production, economics, impacts, benefits, etc.

You have communicated with people continuously throughout this process, have made your information and thoughts and doubts and hopes clear to the public, have been kind to each other and to those outside the Forest Service.

There is no doubt about it: you have some very fine information here and the process has been the one envisioned by Nick Yost and the Council for Environmental Quality at the time the NEPA regulations were developed.

So...remember our appreciation of what you have done as you read our suggestions, questions, demands, and concerns in our comments. We have stated what we believe to be accurate, necessary, and desirable in the comments and look forward very much to your response in the coming weeks and months.

Thank you for your work. If all government agencies functioned as you have throughout this process, we would have quite a participatory democracy! (That is what a number of the early government architects tried to develop, isn't it?)

Sincerely,

Mary O'Brien      Norma Grier  
Mary O'Brien and Norma Grier





NORTHWEST COALITION for  
'ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

February 15, 1988

Comments of  
The Northwest Coalition for Alternatives to Pesticides  
on the  
Draft Environmental Impact Statement  
Managing Competing and Unwanted Vegetation

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A CHOICE BEFORE REGION 6 FOREST SERVICE:  
ALTERNATIVE B OR D?

Alternatives B and D are two alternatives that offer clear choices about the direction that Region 6 will be taking in vegetation management. The final choice cannot be a "mixture of the best of the two alternatives," because the two involve fundamentally different approaches to associated vegetation.

Alternatives B and D provide for alternative vegetation management decisions at five critical junctures.

1. Establishment of treatment needs:

Alternative B considers "need for action" to be established "at the first sign of any competing or unwanted vegetation that could potentially damage wanted species or desired conditions." (Emphasis added.)

Alternative D: "Action will be taken when conclusive evidence - or documented local experience, such as site-specific surveys - indicates that significant damage or growth loss will occur."

Significance:

With Alternative D, foresters act when there is evidence that the vegetation present will likely cause a problem. (Note: Damage does not have to occur before action is taken under Alternative D, but evidence that damage will otherwise occur does need to be available.)

Alternative B allows foresters to act at the first sign that the vegetation is merely present.

There is no more important lesson that vegetation management research has offered in the last few years than this: Vegetation presence does not mean a vegetation problem. The thought that foresters could go back to treating vegetation with herbicides without offering evidence that there is a problem is not a pleasant one. It was a practice that led to great social divisiveness prior to the injunction.

2. Prevention vs. correction of vegetation problems:

Alternative B: There is "no predisposition toward either prevention or correction."

Alternative D: "Prevention is the preferred strategy for pre-empting vegetation problems. Intervention with corrective measures will be used if preventive measures alone are infeasible, inappropriate, or

when unacceptable vegetative conditions have resulted from the design and execution of projects prior to the adoption of this EIS."

Significance:

Is it really going to be acceptable to Region 6 to let foresters use herbicides with one hand to battle a war they produced, exacerbated, or allowed to happen with the other?

3. Preference for chemical vs. nonchemical methods:

Alternative B: "All tools and techniques are permitted." No preference is stated for one method over another.

Alternative D: "Herbicides [as well as all other tools and techniques] are available under this alternative, but will be the last option considered."

Significance:

The critical decision that Region 6 needs to make is whether herbicides are "just another tool" or whether managing vegetation without toxic chemicals whenever feasible is preferable to managing vegetation with toxic chemicals. If Region 6 wishes to see vegetation management move to feasible nonchemical methods, it must state that preference.

Either herbicides are equally as acceptable as prevention and feasible nonchemical methods, or they are less preferable, to be used only after feasible nonchemical methods have been considered. The choice is clear and the decision needs to be made.

4. Factors driving choice of vegetation management methods:

Alternative B: "The methods selected will be the most cost-efficient means to meet the management objectives."

Alternative D: "The preferred tools are those which prevent damage from unwanted or competing vegetation through the design and execution of silvicultural, construction, and other resource management projects to avoid creating or intensifying problem vegetation."

"In the face of uncertainty [regarding environmental effects that may adversely affect long-term productivity or the diversity and integrity of the natural ecosystem], the manager will select a technique that minimizes potential adverse effects on ecosystem structure and function."

Significance:

Our society is facing enormous toxic chemical problems (e.g., groundwater contamination, hazardous waste sites, acid rain) from using toxic chemicals because they were "cost-effective" in the short run. Is our society incapable of learning from the outcomes of this approach?

Obviously, costs are a factor in Alternative D; otherwise herbicide use would not be predicted for Alternative D. But Alternative D makes clear that prevention of problems and the integrity of the ecosystem structure and function must be considered as well.

5. Integration of natural ecosystem processes:

Alternative B makes no mention of the use of natural ecosystem processes for prevention or control of vegetation problems.

Alternative D: "The key to this alternative is the integration of natural ecosystem processes into managing...vegetation. Here, vegetation management emphasizes the implementation of the philosophy of having the least impact on the natural environment while producing products and amenities for human use."

Significance:

Nonchemical pest management methods (whether in forestry, agriculture, urban settings) or elsewhere tend to rely much more heavily on natural processes (predators, seasonal timing, site specific factors, soil health) than on artificial inputs. This is appropriate on public, multiple-use lands.

THE TEN BEST REASONS TO CHOOSE ALTERNATIVE D

1. Alternative D offers a solution to the incredible social divisiveness that existed prior to the herbicide injunction.

With Alternative D, those citizens (including foresters) concerned with herbicide use will see nonchemical approaches to vegetation management used whenever feasible, and those who believe that herbicides are necessary will find them available for use when the herbicides are necessary. Therefore, neither "side" in this decade-long struggle loses.

2. The current impetus to search for preventive and nonchemical measures will be maintained.

If Alternative B, with its explicit indifference to which "tools" are used, is chosen, there will be little impetus to try new methods or develop new techniques for managing vegetation without toxic chemicals.

3. Alternative D acknowledges legitimate concerns regarding pre-injunction vegetation management; Alternative B does not.

Alternative B is basically the alternative that was practiced prior to the 1984 court injunction. Northwest citizens are going to be no happier with Alternative B now than they were in the late 1970s. If the compromise of Alternative D (i.e., herbicides allowed, but only when other feasible alternatives are not available) is not possible, then ten years of research, communication, and evidence among citizens, foresters, and researchers will have been for naught.

4. Integrated pest management (IPM), an approach similar to Alternative D in its emphasis on prevention, attention to the ecosystem in which a pest is located, and avoidance of toxic treatments when feasible, is noncontroversial.

IPM has a track record of excellent public acceptance wherever it has been implemented throughout the world. Pesticide use has a terrible public acceptance record, particularly in the Pacific Northwest.

5. With its emphasis on prevention, documentation of need to treat, and integration of natural ecosystem processes into management, Alternative D calls for more information when managing vegetation.

A more informed forestry is preferable to a less informed forestry.



6. Alternative D sends a message to the public and workers that the Forest Service is concerned that they not be exposed to pesticides unless that is necessary.

Alternative B, by ranking herbicides evenly with other vegetation management methods, tells the public and workers that either the Forest Service does not believe herbicides pose uncertainty and particularly troublesome risks or that the Forest Service does not care that they pose those risks and uncertainty.

7. Alternative D, by emphasizing "having the least impact on the natural environment while producing products and amenities for human use" is respectful of multiple use principles; Alternative B does not emphasize having the least impact on the natural environment.

8. Alternative D will result in less herbicide use than Alternative B.

Oregon's groundwater is contaminated with pesticides, citizens and workers are increasingly aware that pesticides cause illness and sensitization, and citizens are concerned about the increasing contamination of the earth's soil, air, and water. By selecting Alternative D, Region 6 responds to these concerns.

9. The implementation of Alternative B, with its equal ranking of chemical and nonchemical methods, will require a defense of the "safety" of herbicides; a defense the EIS has rendered untenable by its discussions of secret ingredients, inadequacy of toxicological data, and risk to the public and workers.

10. Good faith implementation of Alternative D will enable the Forest Service to use herbicides without the public resistance that will be encountered under Alternative B.

The School District in Eugene, OR, for instance, has encountered essentially no resistance to its current minimal use of herbicides under an IPM program, consultant, and advisory committee. The use of herbicides had been bitterly opposed by a large number of parents when the school had used the herbicides frequently and without adequate consideration of prevention or feasible nonchemical control of vegetation problems. That the acceptance of minimal herbicide use is due to the IPM program and not mere indifference is illustrated by the recent intense controversy surrounding the county's intention to spray herbicides along the roadsides without documenting the need to treat or considering prevention and nonchemical alternatives.

## LAST OPTION USE OF HERBICIDES

The use of herbicides as a last option for vegetation management simply means that if there is a feasible way of managing vegetation without herbicides, that way is preferred. Whether a non-herbicide approach is feasible takes into consideration economics, logistics, workforce, the environment, sustainability of forest health, and health of workers and the public.

Some people seem to have great difficulty conceiving of what it means to use herbicides as a last option. It is important not to get sucked into making what is fairly simple into a highly complex, rigid system. Those who want to avoid use of herbicides don't seem to have trouble recognizing when herbicides have to be used. It is when they can't figure out how to manage the situation nonchemically without running up huge costs, or without jeopardizing other major values, or without causing a problem that will be intractable.

People who want to use herbicides as a last option are like people who want to cross a mountain river without getting their feet or body wet. If there's a bridge nearby, or a rock crossing, or a fallen log, they'll use it. Depending on the size of the stream, they may try to construct something that isn't there already, or walk further up the stream, or, if the stream is dangerous, camp on this side until the next morning when the volume will be down because less snow melts at night. But if the process of avoiding getting wet seems out of all proportion to the problem of getting wet, the person will just walk across the river and get wet.

The question, "When can herbicides be used under a 'last option' scheme?" always seems to come from those who want to use them and want to know what formal hurdles they have to cross before they get to use them.

Using herbicides as a last option involves asking oneself certain questions, such as:

1. How do I know I have or will have a vegetation problem on this site?
2. How do I know the problem is or will become severe enough on this site to warrant action?
3. Can I prevent or help prevent the vegetation from reaching intolerable levels?
4. If treatment will be needed, have I looked at the full range of available, feasible options?

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- (a) Have I checked with other managers who are dealing with this same problem or have dealt with other problems nonchemically to see if they have suggestions?
  - (b) Have I asked local or state environmental groups and other concerned citizens for their best advice regarding this problem?
  - (c) Have I asked ecologists familiar with this area for their best advice?
  - (d) What is the least intervention needed to reduce the problem to tolerable levels?
  - (e) If a treatment method or combination of methods seems a possible, but as yet untried, approach, can I establish experimental plots for the method and variants of the method?
5. If an herbicide treatment seems to be necessary,
- (a) Can I use nonchemical methods in conjunction with the herbicide so that the herbicide use is minimized?
  - (b) What herbicide will least harm non-target organisms, including humans?
  - (c) What are the major concerns people hold regarding the use of this herbicide? Can I take special precautions in light of these concerns?
  - (d) What can I do in the future to prevent this vegetation problem from occurring on other sites?
  - (e) How can I get help in devising nonchemical approaches to this problem in the future?

In other words, use of herbicides as a last option is a process of trying to avoid using herbicides, not a rigid rule.

Whether nonchemical approaches are feasible or not is a question of balancing any of a number of factors. A certain nonchemical approach might in itself be particularly hazardous; in that case, the use of an herbicide might be preferable. A certain nonchemical approach might cost more in the short run; that in itself would not necessarily render the nonchemical approach infeasible, depending upon the acreage to be treated and other factors.

In other words, there is no single factor that would indicate when the use of herbicides is justified.

The question is not simply whether or not to use herbicides, but often is a question of how minimal the herbicide use can be if other, nonchemical methods are employed. In other words, just because

prevention or nonchemical treatment methods may not be able to handle a vegetation problem alone, does not mean they should be abandoned: a minor use of herbicide with those other methods might be all that is needed.

Two objections to herbicide use as a last option are frequently raised:

Objection 1: Nonchemical alternatives will cost more.

Response: If, through careful monitoring, a number of sites do not have to be treated at all, the costs are less. If the problem is prevented from occurring, there are no treatment costs. If the site can be designed so that the need to treat is reduced, costs are less.

Long-run costs may be less. For instance, after forty years, the true "costs" of intensive fertilizer and pesticide use are being seen on a Palouse-area farm in eastern Washington. Compared to the adjacent organic farm, the soil on the chemical farm has less organic matter content, thinner topsoil depth, lower polysaccharide content, more soil erosion, and four times as much water erosion. These differences appear largely due to the fact that the organic farm retained a cover crop in its rotations; the chemical farm had eliminated this cover crop, relying instead on chemical fertilizers and pesticides to support continuous crops (i.e., increased "production") on its farm. The authors of the study conclude, "Our data indicate that the long-term productivity of the organically-farmed Naff soil is being maintained, whereas that of the conventionally-farmed [i.e., chemically-farmed] Naff soil is being reduced because of high rates of soil erosion."

2. Objection 2: Any decisions by the Forest Service to use herbicides will be doggedly challenged, hampering the ability of managers to "get the job done."

Response: This disaster scenario presumes managers are going to be wanting to use herbicides in many situations. In fact, herbicide use may not be all that frequent when managers really do emphasize prevention, site-specific determinations of need to treat, and use of feasible non-chemical treatments.

Herbicide use will be challenged in some instances and it will be necessary for managers to hear the objections and alternatives being offered. If those who object to the herbicide use do have reasonable alternatives that can be tested, tried, or used, then the herbicide use should be challenged, because it isn't a last feasible option.

On the other hand, managers are living within budgets, often have to act before results of ongoing experiments are in, and cannot undertake approaches that are infeasible.

The phrase that makes last option use of herbicides reasonable to those who want to see pesticide dependence reduced is "last option." The word that makes last option use of herbicides reasonable to those

who fear that productivity will be sacrificed is "feasible." The former establishes non-toxic management as preferable; the latter allows for herbicide use when it is necessary.

The attached outline describes the advantages of including last option use of herbicides in the preferred alternative for vegetation management (Attachment A).

#### REFERENCES

1. Reganold, John P., Lloyd F. Elliott, and Yvonne L. Unger. 1987. Long-term effects of organic and conventional farming on soil erosion. Nature 330:370-372.

#### ATTACHMENTS

- A. O'Brien, Mary. 1987. The Advantages of Using Herbicides as a Last Option. Unpublished outline.



THE ADVANTAGES OF  
USING HERBICIDES AS A LAST OPTION

(Region 6 Vegetation Management EIS, Alternative D)

Mary O'Brien  
Northwest Coalition for Alternatives to Pesticides

I. What does using herbicides "as a last option" mean?

- A. In operational terms, it means a demonstrable, good faith effort to manage vegetation with the least use of herbicides that is feasible. (Feasibility may be physical, economic, logistic, etc. It means you can do it without putting undue strain on staff, budgets, etc.)

Last resort use would involve demonstration that:

1. A vegetation problem does or will soon exist on that site.
2. Prevention of the vegetation problem is infeasible or the time during which prevention would have been feasible has passed.
3. No nonchemical approaches are currently available that will, by themselves, manage the problem.

B. Any use of herbicides should include demonstration that:

1. The region, forest, or district is making an attempt to develop alternative management practices that will eventually minimize or eliminate this particular need for herbicides.
2. The particular herbicide and application method chosen for use is, within feasibility, the least toxic herbicide for the purpose, will be least likely to leach through that soil or otherwise reach water on that site, and will exert the least adverse effect in that situation (e.g., with that mode of application, proximity of residences, collection of species).

In other words, even when herbicide use is called for, attention should be paid to considerations other than purely economic.

II. Last option use of herbicides leads to more cooperation with site-specific features of the environment.

- A. Vegetation associations are classified as to which are real problems. This means more site specificity in prescriptions and less need for intervention.
- B. Prevention is emphasized, which means the causes of problems are more carefully studied, and the human role in producing problem vegetation is considered.
- C. The beneficial roles of associated vegetation are considered.
- D. The perception is encouraged that "forestry by poisoning species" is not the best we can do.
- E. A diversity of approaches are inevitably discovered, such as:
  - 1. Mulching on certain sites.
  - 2. Leaving salmonberry on certain sites.
  - 3. Cutting alder at its vulnerable time of the year.
  - 4. Pulling Ceanothus at age two or three.

III. Last option use of herbicides addresses most of the pre-injunction problems that were extraordinarily socially disruptive, while retaining herbicides where no better alternatives exist.

Pre-injunction problems included the following:

- A. Vegetation was sometimes treated where vegetation competition didn't actually exist.
- B. Areas were sometimes sprayed because they were near the heliport and because it's cheaper to spray 100 acres rather than spray only 50 acres that have severe problems and manually treat another 50 acres where there are very few problems.
- C. Herbicides were the primary method of treatment.
- D. Managers were sometimes unwilling to develop non-herbicide approaches.
- E. Managers were often defensive about the "safety" of herbicides.

IV. What if the final preferred alternative allows herbicide use only as a last option?

# I/B Public Participation and Consultation

- A. The current impetus for research into nonchemical approaches and for innovation will continue.
- B. Communication among forests and districts regarding alternatives will be seen as advantageous.
- C. Communication with environmental groups and IPM specialists will be seen as helpful.
- D. Managers will keep refining their understanding of what vegetation needs to be treated.
- E. Those vegetation problems not easily solved without chemicals will be highlighted, helping to identify longerm research priorities.
- F. The public will be assured that the Forest Service recognizes that herbicides are problematic.
- G. Herbicides will be available where most essential and appropriate.
- H. Herbicide use will be minimal.

V. What if the final preferred alternative allows herbicides to be used as if they were just one more tool?

- A. Research into nonchemical approaches will be relegated once again to low priority because there will be no "need" to look for alternatives.
- B. Citizens concerned with herbicide spraying will feel helpless at encouraging local forests or districts to recognize the larger ecological and social impacts of herbicide use or to work at developing alternative approaches.
- C. Citizen recourses will be inevitably legalistic and strife-ridden.
- D. The Forest Service will be seen as having reverted to its pre-injunction stance.

VI. The policy of using herbicides as a last resort is reasonable.

- A. Most of the ingredients in an herbicide formulation are unknown to the Forest Service and the public and have not been tested. The herbicide formulation itself has not been tested except minimally for acute toxicity.

- B. As shown in the DEIS, none of the revealed herbicide ingredients has been tested adequately to produce a risk assessment in which confidence can be placed.
- C. A number of the herbicides have been shown to damage the health of humans.
- D. As hopefully will be stated more accurately in the FEIS than in the DEIS, we know next to nothing about the effects of these herbicides on wildlife.
- E. Herbicide use will not be precluded where nonchemical approaches are economically or otherwise infeasible.

SUPERIMPOSING ELEMENTS OF ALTERNATIVE E  
ON ALTERNATIVE D

CHANGES NEEDED

Certain precautions identified in Alternative E should be adopted in the preferred alternative in the Final EIS.

Alternative E is designed to emphasize human health considerations and to reduce risks posed by vegetation management tools. By design, (1) the use of 2,4-D, amitrole, fosamine, and diuron is prohibited, (2) extra worker safety requirements are required, (3) no aerial application is permitted, (4) no burning of herbicide-treated vegetation is permitted, and (5) herbicide applications in designated municipal or industrial watersheds are prohibited.

The problems and the uncertainty with herbicide use are significant and abundant. As a result, the preferred alternative in the Final EIS should consider herbicide applications only as the last option. However, when herbicides are considered for use, they cannot be considered equal. Certain concerns identified in Alternative E (and in the herbicide profiles requested by NCAP) should be adopted into the final alternative that is selected. The final preferred alternative should include the ecological thinking that is evident in Alternative D with the considerations of risk developed in Alternative E.

1) The Final EIS's preferred alternative should eliminate 2,4-D, amitrole, diuron, and fosamine from being used in any application.

The EIS indicates diuron and fosamine do not have sufficient information to evaluate human health hazards. (IV-116)

Amitrole is identified as causing systemic effects and cancer in animal species (IV-111) and as an herbicide of particular concern. (IV-115)

The herbicide 2,4-D is identified as an herbicide apparently causing cancer in humans (IV-96, IV-97, IV-99), nerve damage in humans (H-118), having low NOELS (i.e., high toxicity) for kidney effects (H-16), reproductive effects (H-94), and fetal effects (H-103) in laboratory animals, genetic effects in numerous tests (H-58 to H-59), and immune system effects (H-118 to H-119). These concerns are apparently the basis for indicating 2,4-D is of "particular concern". (IV-116) Additional 2,4-D concerns identified by NCAP appear in our comment chapter on 2,4-D.

2) Extra worker safety considerations should be retained, and the discrepancies in the EIS should be addressed.



E onto D

Page 2

The Draft EIS contains curious discrepancies as it discusses concerns regarding specific herbicides.

In the description of Alternative E in Chapter II, three herbicides are eliminated from use in backpack applications:

bromacil  
simazine  
2,4-DP.

In Chapter IV (pp. 115-116), five herbicides are identified as herbicides "of particular concern for toxicity" :

amitrole  
atrazine  
dicamba  
2,4-D  
2,4-DP.

In the summary of potential health impacts by exposure scenario for backpack sprayers (IV-107), four herbicides are listed as being "in the uncertain confidence range for all three types of toxic effects" (i.e., systemic, reproductive, and developmental effects):

atrazine  
simazine  
triclopyr  
2,4-D

If atrazine and dicamba are "of particular concern for toxicity," why are they not eliminated from backpack spraying use?

If there is great uncertainty that workers will escape adverse effects while using atrazine, and triclopyr, why are they not eliminated from backpack spraying?

Why was bromacil eliminated from backpack spraying when it is not listed as one of the herbicides of particular concern for overall toxicity nor as one of the herbicides exhibiting uncertainty that workers will escape three major adverse effects? NCAP believes it should be retained in the group of herbicides eliminated from backpack spraying.

Bromacil is listed as having a marginal quality test for general toxicity that established a NOEL of 6.25 mg/kg/day. (IV-101) The bromacil general toxicity testing reviews in Appendix H list the mouse chronic toxicity study (Haskel Labs 1980) as having a minimum acceptability classification and establishing the NOEL at less than 250 ppm which was the lowest dose tested. (H-15) The CDFA summary of toxicology data identifies this same study as an inadequate study that showed testicular abnormalities at the lowest dose tested (250 ppm). It

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is wrong for the summary in Chapter 4, page 101 to identify a NOEL when an unacceptable study found adverse effects at all doses tested. There is no established NOEL for the systemic toxicity of bromacil.

Furthermore according to CDFA, the reproductive toxicity study for bromacil (3 generation rat) is unacceptable. (H-93) The NOEL is established as greater than 250 ppm, the only dose tested. In Chapter 4, page 102, the quality of testing for bromacil's reproductive effects is identified as marginal. The EIS cites moderate estimated confidence that no adverse human health effects will occur to backpack spray workers. (IV-107) This level of confidence seems inappropriate given the unacceptability of the reproductive toxicity test.

In conclusion, based on your summary of herbicides of particular concern for toxicity and uncertainty regarding worker health damage, we would suggest that you eliminate atrazine, bromacil, dicamba, simazine, triclopyr, and 2,4-DP from backpack spraying (and presumably that includes hack-and-squirt).

We actually understand your problem: You have examined the data base available regarding toxic effects of the revealed ingredients of the herbicide formulations you propose to spray, and you find that where tests exist, they sometimes exhibit low NOELs or severe effects. In most cases the tests are inadequate or absent altogether. You find yourself playing with people's lives: how do you balance a low NOEL (high toxicity) in a developmental toxicity test in one herbicide with NO test in reproductive effects in another herbicide? Clearly, herbicides should be used only as a last option: they are toxic wild cards, as you have shown.

3) Aerial application of herbicides should not be categorically excluded. Decisions about the method of application should be made on a site specific basis.

NCAP asserts that a site-specific program with rigorous evaluation of the need to treat vegetation and clear direction to use herbicides only as a last option will be a program that results in few situations for which aerial applications of herbicides will be considered. (Also see NCAP chapter on drift.) The Forest Service's primary emphasis should be on using the classical integrated pest management decisionmaking process.

Worker exposure to herbicides from ground application is an overwhelming disadvantage that is not sufficiently addressed in the mitigation section of the Draft EIS (see advantages and disadvantages listed on II-80 and 81). Compliance with the Forest Service Handbook is given as the major mitigation strategy (II-83) with Washington and Oregon Departments of Agriculture licensing and training as a mitigation quality control measure.

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Page 4

Many workers making ground applications of pesticides on Forest Service land will not be Forest Service employees, but rather employees of the many private contractors who bid on this type of work. Ground applicators, therefore, will not have the training, supervision, and safety standards customarily afforded government employees. Forest contractors are not required to make sure that all of their workers are licensed to apply pesticides. A contractor needs to have one certified applicator who, according to Oregon law, does not even need to be present on site, but merely needs to be accessible. There is no guarantee that workers will benefit from the mitigation procedures outlined in Chapter 2.

A case in point is a situation investigated by the Oregon Pesticide Analytical and Response Center and summarized in their October 16, 1987 minutes (Case #388).<sup>1</sup> Training of licensed applicators does not guarantee all applicators will be protected.

PARC Case #388 - This case involves contact from an individual in Roseburg who notified PARC and requested analysis of a clinical sample on an employee of his firm whose pant leg was saturated while the employee applied dursban with a backpack applicator with a broken hose. The individual repaired the broken hose and continued working for several hours without decontaminating himself, with illness following. He was seen by a physician. Analytical results were forwarded to the physician, with copies of the results and an accompanying letter to the employer and employee on August 31, 1987.

Both ODA Plant Division and Accident Prevention Division were notified of the situation. APD was concerned regarding equipment use and maintenance and addressed these concerns. The employer, as noted by the Board, anticipated a potential problem and sought consultation to correct the situation. This is a mode that APD plans to use in the future.

As no ongoing medical concerns were noted, the Board provisionally closed the case. PARC will await the report from APD. Dr. Wehr was requested to write a letter on behalf of PARC to the employer (concerned individual) indicating no ongoing medical concerns, and the case was provisionally closed. Case Evaluation Form to be sent along with this letter.

Although training makes applicators more aware of personal danger, not everyone takes protective steps. A 1979 Educational Testing Service study in North Carolina, revealed that "training had increased the number of farmers who claimed to wear waterproof gloves during mixing and loading from only 42 percent to 77 percent. In other words, half of the people who had not used them beforehand also disregarded them afterwards."<sup>2</sup>

Frequently, protective clothing is inappropriately emphasized as a means of mitigation. Using fluorescent tracers, Richard Fenske found that even materials as impermeable as rubber gloves allow considerable deposits on workers' hands.<sup>3</sup> Worker exposure analysis is replete with problems. NCAP's concerns with the quantification of exposure estimation appear in our June 12, 1986 comments to BLM on the joint Forest Service-BLM

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Labat-Anderson Inc. human health assessment (Appendix D in the Draft EIS) which are attached.

Workers using hack and squirt application techniques are at high risk. The death of one worker, James Greenhill, from the Rogue River National Forest is documented in NCAP's comments on 2,4-D. As he testified a month before his death, he routinely became soaked in herbicide as he performed hack and squirt operations. Two other Region 6 Forest Service workers confirmed this report from their own experience. You must not hide behind theories about protective clothing and training.

Worker complaints from a 1986 hack and squirt application using Garlon near Vernonia, Oregon prompted an Oregon State Pesticide Analytical and Response Center (PARC) investigation (#268) that resulted in the state writing an informational bulletin because "it appeared that insufficient information and instruction was available to individuals employed in forestry hack and squirt operations."<sup>4</sup> In the minutes of the December 15, 1987 PARC meeting, Accident Prevention Division (APD) circulated copies of a revised brochure "to be given out to loggers and others" on hack and squirt. The brochure "was innitially designed in response to concerns of those in the logging industry."<sup>5</sup>

PARC Case #416, summarized in the meeting minutes from January 19, 1988, reveals the following:

PARC Case 416:

On December 24, 1987, a physician in Seaside notified PARC regarding a patient who was an employe of Western Cascade Logging, carrying out a hack and squirt operation in the Jewell, Oregon area, using garlon on December 17, 1987. During this application, the individual's clothing became saturated with the material which resulted in skin exposure and other medical concerns.

A clinical sample was analyzed, with no residue of garlon found, although as Dr. Wagner noted, the sample was taken five days after the exposure.

Joy Flack-Pennington stated that the situation was referred to the APD region office. A certified letter from the individual's employer has been required. Dr. Wagner suggested to her that a copy of APD's "Hack and Squirt" brochure should be sent to this employer, as well as to the physician.

As there is no continuing health problem, the case was provisionally closed, pending receipt of the completed Case Evaluation Form from the concerned individual. APD was asked to provide PARC with a copy of its report when completed.

It is common to explain away workers' complaints by claiming the workers didn't "do things right." A convenient delay tactic, but the fact is, ground applications are messy.

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Page 6

Because of this concern for worker exposure, NCAP will not support elimination of aerial applications of herbicides (even though that restriction would make herbicides seem less cost-effective due to increased costs for ground applications).

There are significant problems from aerial application of herbicides. (See the comment section on drift). The best approach is to emphasize prevention and nonchemical treatments so that the need to consider herbicides is infrequent. However, when herbicides are considered, the wisdom of imposing significant risks on a few ground application workers is questionable. Decisions about the method of chemical application should be made on a site-specific basis.

4) Restrictions on burning of herbicide sprayed slash should be maintained.

There are significant concerns surrounding the potential adverse effects of burning sprayed vegetation. Until adequate data are collected and sufficient evaluation of adverse effects is accomplished, the limits on burning should be maintained.

More detailed comments on slashburning are provided in the section called "slashburning".

5) No herbicide applications should be made in formally designated municipal or water district watersheds or in the immediate watersheds of rural residents who request additional protection. Drinking water sources must be protected.

Herbicide residues in drinking water are of great concern. Herbicides leach, are subject to runoff, and are otherwise mobile in soil, getting into drinking water sources. (See NCAP's comments on creating herbicide profiles of concern.) The following herbicides proposed for use in Region 6 have been found in California to contaminate water from non-point sources: atrazine, 2,4-D, and simazine. The following herbicides proposed for use in Region 6 appear on the EPA Priority I and II lists of "leachers": atrazine, bromacil, dalapon, dicamba, diuron, hexazinone, picloram, simazine, and tebuthiuron.

The concern for drinking water quality is primary and has been brought to NCAP's attention by water quality specialists or residents of Cottage Grove, Oceanside, North Bend, and the Dalles, as well as numerous rural residents who acquire their domestic water sources off of forested land.

Protection should be granted to communities and individuals with drinking watersheds within Forest Service lands by eliminating herbicide use within those watersheds. Forest Service spraying in people's watersheds is felt as a violation of their personal lives and provokes a feeling of sad helplessness in some, anger or rage in others.



#### WHY THIS IS IMPORTANT

Many of the protections for human health identified in Alternative E should be incorporated into the preferred alternative in the Final EIS (minus the aerial application restriction). Otherwise the identification of these concerns has been for naught. When considering the use of herbicides as the last option under Alternative D, forest managers should not reach for all sixteen herbicides as if they were equal.

Forest managers need to avoid herbicides or specific uses of those herbicides that have been identified as posing special problems.

#### REFERENCES

1. Oregon Department of Agriculture. October 16, 1987. Pesticide Analytical and Response Center Meeting Summary. Salem, OR.
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4. Oregon Pesticide Analytical and Response Center Activity Report for 1986. Oregon Department of Agriculture (lead agency) Salem, Oregon.
5. Oregon Department of Agriculture. December 15, 1987. Pesticide Analytical and Response Center Meeting Summary. Salem, OR.
6. Assembly Office of Research. 1985. The Leaching Fields: A Nonpoint Threat to Groundwater. Sacramento, CA.
7. Mary O'Brien. Spring, 1987. Leachers and Suspected Bad Actors. Journal of Pesticide Reform. Eugene, Oregon: NCAP

#### ATTACHMENTS

- A. Section 4: Exposure Analysis (Comments 112 - 125) in: NCAP. June 12, 1986. Additional Comments on Supplement to the Western Oregon Program - Managment of Competing Vegetation Draft Environmental Impact Statement



# NORTHWEST COALITION for ALTERNATIVES to PESTICIDES

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June 12, 1986

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## Additional Comments on Supplement to the Western Oregon Program- Management of Competing Vegetation Draft Environmental Impact Statement

### Background

The following comments are offered on behalf of the Northwest Coalition for Alternatives to Pesticides (NCAP). Earlier comments sent by NCAP (May 11, 1986) noted some of the Supplement's deficiencies through L-38; these note some on later pages. In addition, five EPA documents referenced in the EIS had been requested by NCAP on March 5, 1986; they were not mailed from EPA until May 20, 1986. Since those unpublished references arrived two and a half months after the Supplement was issued, the BLM will surely not consider these comments "late" in terms of the official closing period for comments on the Supplement. NCAP requests responses to each of its comments.

### Specific Comments

#### Mutagenicity of the 16 Herbicides

Note: Comments 1-77 are found in the May 11, 1986 comments of or NCAP on this Supplement.

BLM 78: "Amitrole does not present potential for heritable genetic effects (EPA, 1985a)."

NCAP 78: This statement is lifted verbatim from an EPA summary of test results that cite five positive results in mutagenicity assays. Moreover, the report cites five studies in which amitrole induced transformation of cells into malignant states. The EPA concludes these transformation assays "do not necessarily show that a transformation inducer is genotoxic. These results support oncogenicity potential but not necessarily mutagenicity potential." (Emphasis added.)

*recycled paper*

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cancer potencies BLM claims to be using is useless if the public cannot see whether in fact those cancer potencies are used and, if used, used in an appropriate manner.

The formulas must be printed in the EIS so that the derivation of cancer risk can be followed by the public.

- NCAP 111: None of the cancer tests (except for the atrazine-simazine mixture) have been performed on the full formulation of the pesticide. Given that the EPA has indicated that inert ingredients of pesticides include benzene, formaldehyde, asbestos, carbon tetrachloride, methylene chloride, petroleum hydrocarbons, etc., all known carcinogens,<sup>3</sup> the BLM must discuss their lack of knowledge of the inert ingredients and the lack of cancer testing of the full formulation. The importance of this is the results on the Fogard S mixture of atrazine and simazine. The BLM must discuss the relevance of this missing information for the accuracy of their risk estimates (40 CFR 1502.22, April 25, 1986 version).

#### Section 4: Exposure Analysis

- BLM 112: "...with inert ingredients forming the remaining portion." (L-45)
- NCAP 112: Define inert ingredients so that the public understands that inert ingredients are not inert.<sup>1-3</sup>
- BLM 113: Table 4-1 footnote: "Inhalation is negligible based on field study data." (L-47)
- "...a variety of studies have shown that inhalation exposure is very small compared with dermal exposure." (L-48)
- "Field studies of workers have consistently shown that inhalation exposure represents only a small part of the total exposure..." (L-48)
- NCAP 113: Cite the data.
- BLM 114: Table 4-2. Dietary Exposures Estimated in This Risk Analysis: Food items, realistic: Meat from a deer feeding offsite. Worst case: food items closer to treatment unit. (L-47)

"Game animals may have fed on plants from the drift area." (L-48)

NCAP 114: It is realistic to expect a deer (and other game) to feed onsite.<sup>37</sup> Calculate on that basis.

BLM 115: "...worker doses are based on actual dose levels found in field exposure studies in which no protective clothing or equipment was worn." (L-49)

NCAP 115: (a) The public is not told which worker doses are plugged in to which formulas to get the dose numbers in Tables B-1 - B-8 (which are carried to the fifth place right of the decimal point) or the dose levels (incorrectly called "doses") in Tables 4-11 and 4-12.

(b) Many of the worker studies cited by the BLM do not tell whether the workers were or were not wearing protective clothing or equipment. The Libich, et al. (1984) study indicates that the 1980 portion of the study involved workers wearing protective clothing. Were figures from that study used in the BLM formulas? The Nigg and Stamper study (1983) does not describe the clothing worn. The Kolmodin-Hedman, et al. (1983) study indicates a variety of clothing: some had rubber gloves, some high boots and a visor, etc. The Taskar, et al. (1982) study does not describe the clothing worn. The Kolmodin-Hedman and Erne (1980) study does not describe the clothing worn.

The BLM must indicate which studies they are referring to and how they know no protective clothing or equipment was worn.

It is not currently possible to figure out which worker numbers were used from which studies to get which doses.

BLM 116: "The dermal penetration rates used in the analysis were 6 percent for 2,4-D (Maibach, 1974)..." (L-50).

NCAP 116: Maibach indicates (personal communication) that the dermal penetration rate must be doubled to 12% because the studies were done on the forearm, the least vulnerable portion of the entire body. Maibach indicated that this required doubling has been published since 1974. The BLM should contact Dr. Maibach. The 6% rate is not defensible.

BLM 117: "Doses for each worker category found in the studies are listed in Table 4-5." (L-51)

## I/B Public Participation and Consultation

- NCAP 117: Doses are listed for only three of the 10 studies described on L-51 - L-53. Which doses were used from the other 7 studies? What formulas were used for any of the doses?
- BLM 118: "The realistic dose estimates are higher than those that would occur...[e.g.] during the field exposure studies, many of the less severe types of accidents occurred.... Nevertheless, their doses were used in deriving the average worker doses for that field study." (L-54)
- NCAP 118: If the "less severe types of accidents occurred" in the studies, why would that make the realistic dose estimates higher than those that would occur with the BLM? Somehow the BLM workers don't experience minor accidents? Their hoses or pumps don't ever break down?
- BLM 119: The BLM estimates public exposures "by modeling the transport and fate of the applied herbicides. Details of the transport and fate modeling are in the next subsection." (L-55)
- NCAP 119: The modeling subsection describes considerations the BLM purportedly took into account in estimating public exposure. Nowhere does the BLM write out the formulas and indicate which numbers were actually plugged in. For instance, in Table 4-7 0.0090 mg/sq. ft is estimated to drift onto berries and animals, 0.0043 mg/sq. ft onto the public and crops, 0.0264 onto water. Where did these numbers come from? What's the difference between berries and crops? Humans and nonhuman animals?
- This entire exposure section is not able to be reviewed by the public until formulas are described and specific numbers cited, referenced, publicly derived, etc.
- BLM 120: "Herbicide doses to individuals were calculated assuming that they drink 1 liter of the maximally contaminated water." (L-60)
- NCAP 120: Once? Ten times? Aside from calculating lifetime doses for cancer, the BLM needs to consider cumulative effects of drinking contaminated water more than one day.



- BLM 121: Residues in Game Animals: "This is similar to the method used in the exposure analysis of USDA (1984)."  
(L-61)
- Dermal Exposure (L-61)
- NCAP 121: What are the actual residues calculated? What are the formulas?
- BLM 122: "Lifetime exposures to the public for the five [do you mean seven?] herbicides [in the cancer risk analysis] were derived by assuming a realistic estimate would be a single exposure per lifetime..." (L-63)
- NCAP 122: When a watershed is sprayed, exposure is not for one day, whether in water, soil, etc. (See, for instance, the comments of Carol Van Strum and Paul Merrell regarding the continuing contamination of the Coast Range environment by TCDD years after 2,4,5-T spraying.)
- Cite evidence that water will be pure the second day, berries will be uncontaminated, game will have residues for one day, etc. Why is a one day scenario considered realistic?
- BLM 123: Vegetation contact: "In most casesm [sic] measurements of the total plant residues overen [sic] time were available, so this data has been used to calculate degradation rates in those cases where surface measurements were unavailable." (L-63)
- \* Table 4-10 (L-64) lists doses due to vegetation contact on day 1, day 30, and day 90.
- NCAP 123: (a) Cite your references for each of the degradation rates.
- (b) Why is vegetation contact dose 0.0 for picloram on the first day?
- BLM 124: Effect of Body Size on Exposure: "All doses estimated in the exposure analysis were calculated for a representative 50-kg person.... [A] 20-kg child will receive a dose that is 36 percent greater in terms of mg/kg than it would be for a 50-kg person." (L-63)
- NCAP 124: (a) What is the reference for this calculation? An estimate of infant and adult exposure to carbon tetrachloride near a hazardous waste disposal site indicated a 5-fold difference.<sup>39</sup>

Cite your evidence for your calculation of only a 36% increase.

(b) The only accounting for children appears in this statement and Table 4-9 (L-63) where the 2,4-D aerial routine-worst case scenario dose is figured for a 44-pound child and a 110-pound adult. Where are estimates of margins-of-safety for children? What is the meaning of a 36% greater exposure (which is an unreasonably conservative estimate)?

(c) Where is consideration of the particular vulnerabilities of children because of their immature immune system, rapidly dividing cells, undeveloped nerve system, etc.?

BLM 125: Lifetime doses are listed in Tables B-24 - B-32.  
(L-68, L-123 - L-130)

NCAP 125: What numbers went into what formulas for these doses? What estimates of persistence in water, on food, on the vegetation? How can those tables possibly mean anything to the public if the formulas and numbers are not spelled out? (See 40 CFR 1502.24, 1502.1)

#### Section 5: Human Health Risk Analysis

BLM 126: Reproductive effects are described as "fetotoxic and maternal toxic" effects. (L-69)

NCAP 126: The BLM is failing to consider paternal reproductive toxicity.

BLM 127: "The ratio between the animal NOEL and the estimated human dose, referred to in this analysis as the margin of safety (MOS), is used to account for the uncertainty inherent in relating doses and effects seen in animals to doses and effects seen in humans." (L-69)

NCAP 127: There is no "margin of safety" immediately below the NOEL (see NCAP comments #6 and #9).

BLM 128: "For convenience in this analysis, the ratio between the herbicide's LD<sub>50</sub> and the estimated human dose also is expressed as an MOS [margin of safety]; however, it should not be interpreted in the same way as the

## DEFINING PREVENTION

CHANGES NEEDED

Prevention should be defined in the Final EIS to ensure that early treatment is not called prevention.

Many of the alternatives refer to managing vegetation using prevention: Alternatives A, B, F, and G will involve management without predisposition to either prevention or correction; Alternative D and E will emphasize prevention; and Alternative C will most commonly manage vegetation with corrective treatments.

Alternative D manages vegetation to "avoid the need for corrective measures". (II-12) Prevention is defined in various ways:

"The project planning stage is the most appropriate stage for implementing a prevention strategy... The harvest prescription may then include measures to limit the vigor of competing vegetation." (II-12)

"Prevention is the preferred strategy for pre-empting vegetation problems." (II-12)

"The preferred tools are those which prevent damage from unwanted or competing vegetation through the design and execution of silvicultural, construction, and other resource management projects to avoid creating or intensifying problem vegetation." (II-13)

These explanations all include the concept of preventing the problem of vegetation. As stated in Appendix A-34,

(c). Problem Prevention

This aspect offers the best long-term opportunities for minimization of weed problems. Included is the evaluation of complete reforestation and stand management systems for reduction of weed vegetation problems. Another important area of study is in weed ecology (especially ecesis—the establishment of a plant in a new habitat) and the role of early seral species in nutrient cycling, nutrient retention, and maintenance of long-term productivity.

Much work addressing these management needs is being conducted by agency, industry, and university organizations. Cooperative approaches with pooled resources are a likely trend because of the complexity of the problem and limitations of individual organizations.

Prevention is differently and inappropriately explained elsewhere, however. On II-13 it is contrasted with correction:

Generally, corrective actions include slash disposal, suppression of competing vegetation for planting or release, spraying or brushing rights-of-way, and suppression of noxious weeds. Although these actions are usually considered corrective, it is the intensity, frequency, extent, and timing of their implementation that sometimes distinguishes a corrective action from a preventive action (refer to the section in this chapter that discusses the five steps in managing vegetation for definitions and examples of corrective and preventive actions).

Prevention is described as one of four strategies to manage vegetation: (II-57)

Prevention here means initiating action before unacceptable damage takes place—before the damage threshold is reached (see figure II-8). Actions are usually applied early, and the action threshold is low. Control of damaging species can be achieved in the early developmental stages, using less energy and (usually) fewer applications. The difference between the damage threshold and the action threshold is usually great, and the relationships between species are usually well understood.

It is defined in the glossary: (glossary 12)

*Prevention* One of four strategies used in the alternatives. Prevention requires early action, well before competition or plant cover causes damage, and relatively small amounts of energy and resource input.

These latter three discussions of prevention include actions that are taken directly against the problem plant to kill or suppress it. These actions are not prevention. If you are having to kill the vegetation directly, you weren't able to prevent it from being present in numbers or vigor capable of damaging the crop trees and being a problem.

Prevention is management and actions that eliminate the conditions that allow, cause, or favor unwanted vegetation to become a problem. The EIS needs to clearly separate actions directed against problem plants (treatments) and actions that affect the conditions favorable to vegetation becoming problematic.

#### WHY THIS IS IMPORTANT

If the definition of prevention includes early corrective action, blanket spray programs, even under Alternative D, could be justified by claims that they are "prevention".

There is no question that prevention may at times be impossible and early treatment (nonchemical and/or chemical) may

Defining Prevention  
Page 3

then be the best action to take. However, if prevention and early treatment are not clearly defined as separate, the impetus will be lost to search for preventing the conditions that favor vegetation becoming a problem. It is tougher to figure out how we may be unnecessarily causing the problems we are "needing" to treat, or how we could encourage the ecosystem to control the vegetation naturally, but ultimately that search holds the greatest promise for working with the forest instead of against it.



PROFILE OF HERBICIDE CONCERNS

CHANGES NEEDED

\*Prepare a profile of the major environmental impact concerns for each herbicide.

Appendix C, "Herbicide Use and Efficacy," describes in a clear fashion the trade names, chemical name, use pattern, application method and mode of action, target vegetation, and potential nontarget plant effects or use limitation of each of the 16 herbicide ingredients proposed for use.

(Side note: Only those trade names of formulations the Forest Service intends to use should be listed.)

A similar presentation needs to be made of the major health and environmental impact concerns raised by each herbicide. Perhaps the following list of concerns should be presented for each herbicide:

1. Human survey (epidemiological) evidence of concern.
2. Major laboratory test adverse effects.
3. Anecdotal evidence of concern.

(E.g., Minnesota forest workers have complained of experiencing headaches when working with Velpar (hexazinone) (Attachment A); A Rogue River National Forest worker died of malignant lymphoma and his family was awarded \$1.5 million on the basis that he died from his exposure to 2,4-D during hack-and-squirt operations and The Dow Chemical Company had not warned users of the great toxicity of 2,4-D (see 2,4-D Comment, Attachment A.); Of 143 pesticides reported for causing human illness in California in 1986, glyphosate (Roundup, Rodeo) was fourth in the number of incidents reported to the state (Roundup Fact Sheet, ref. #12))

4. Major data gaps (studies not submitted; inadequate studies for major health damage effects).

(E.g., Data gaps noted by EPA, the California Department of Food and Agriculture)

5. Wildlife adverse effects that have been noted.
6. Environmental fate problems (persistence, leaching, metabolites).
7. Other.

Much of the information useful for these profiles is already present in one form or another in the DEIS, but it is scattered among text chapters and appendices. On the other hand, a fair amount of information will have to be gathered for these profiles, in part because wildlife effects and environmental fate materials were so poorly researched for the DEIS. Much information is documented in NCAP's Pesticide Fact Sheets; more information is available in NCAP's files (e.g., Pesticide Fact Sheets have not been developed for each herbicide ingredient proposed for use).

All of this information should be gathered, however, because this is an EIS proposing the use of 16 different herbicide ingredients. If the necessary data search is fairly extensive, it is because the list of proposed herbicides is also fairly extensive.

#### WHY THIS IS IMPORTANT

1. Even if herbicides are used as a last option, decisions have to be made regarding which herbicide to use. Each herbicide has a unique complex of problems and, depending on proximity to residences or water, soil type, method of application, nontarget vegetation and wildlife present, etc., certain herbicides are less desirable to use than others.

At the present time, information that is relevant to selection of an herbicide is scattered in odd places throughout the EIS text and appendices. Just as Appendix C provides foresters with a "handy guide" to the appropriateness of herbicides for certain uses, the EIS needs to provide foresters with a "handy guide" to the potential inappropriateness of specific herbicides in a given social, biological, aquatic, or work setting.

All herbicides are not equal.

2. A forester who decides to use a certain herbicide in a particular situation should not be "caught off guard" at having not considered certain critical factors. Is this area near a local watershed and is this herbicide a known leacher? Will this application involve backpack spraying and is this herbicide known to have frequently caused workers to complain of adverse effects?

Minimal use of herbicides is likely to cause the least social disruption (and adverse effects) if the pesticide user has considered a range of factors that should impinge on the selection of any pesticide for any given situation.

3. This is an environmental impact statement, and those environmental impacts of greatest social, health, and environmental concern should be presented in a fashion that is readable and understandable. Each herbicide should be understood in its totality, rather than dissected into dozens of scattered bits of effects.

4. While developing this EIS, the Forest Service has made a great effort to really look at the data available (and unavailable) regarding potential environmental and health impacts (particularly human health effects) rather than merely going through the motions of writing an EIS while in actuality weaving a blanket amnesty for herbicides in general. Moreover, at least in the case of human health effects, the Forest Service has looked at the quality of the available data.

The Forest Service should therefore gather this information together in one section so that agency folks and the public can see each herbicide as posing a unique complex of concerns.

#### ATTACHMENTS

A. Minnesota Department of Natural Resources documents bearing on worker complaints regarding Velpar (hexazinone) adverse health effects.

## PRODUCTIVITY

CHANGES NEEDED

1. Either adequately support or eliminate the claim that long-term sustained yield will be reduced under Alternative D. The long-term sustained yield capacity is projected as a 1 1/2 to 2% reduction over the full rotation in Alternative D as compared to Alternative B. (II-23)

Alternative D integrates "natural ecosystem processes into managing competing and unwanted vegetation." (II-12) "The implementation of the alternative will involve early preventive measures, monitoring of sites, and frequent evaluations of conditions and practices." (II-12) "[Alternative D] requires the consideration of the health of those ecosystems as seen in conditions such as growth and diversity." (II-12) "The need for coarse woody debris for long-term site productivity is recognized." (II-13)

Unquestioningly, Alternative D requires more attention than other alternatives to site evaluation, information on ecosystem effects (e.g., availability of nutrients from and importance of N-fixation from plants), erosion control, retention of diversity, and reduction of toxic inputs. Where problems are going to occur, this alternative calls for action. Will none of this translate into increased long-term sustained yield compared to Alternative B? Why would more specific site-specific information lead to lower yield?

Management under Alternative D is intended to have "the least impact on the natural environment while producing products and amenities for human use." (II-12) "Vegetation management activities will be those required to support the production of Forest commodities at a level approximating those of the applicable land and resource management plans." (II-13)

Alternative B is used as the reference for evaluating long-term sustained yield effects of the other alternatives. "All vegetation management tools and techniques are available for use in the appropriate environmental setting under Alternative B. This will eventually translate into a high level of timber yields." (IV-53) How does this differ from Alternative D? Alternative D also has all tools available for use in appropriate settings. It simply requires less information and doesn't favor prevention of problems or less toxic management.

Alternative D is expected to increase long-term productivity as compared to Alternative B through leaving biomass on site, managing fire risk, and increasing nutrient availability. (II-23)

Given the potential for increased productivity, the projected reduction in long-term sustained yield under Alternative D is incongruous. In fact, the potential to have shortfalls in long-term sustained yield due to taking action in the absence of crucial information, relying on toxic chemicals to boost production, and failing to emphasize site-specific needs under Alternative B could reduce long-term yield more readily than Alternative D.

Of interest is a recent study of the longterm productivity potential of two adjacent Palouse area farms in southeastern Washington: one farmed with fertilizers since 1948 and pesticides since 1950, the other farmed organically. (Both began as organic farms in 1908 and 1909.) In the absence of chemical fertilizers and pesticides, the organic farmer retained a three-part rotation, one of which includes a green manure crop of Australian winter peas. The other farm, having dropped that rotation, has lost organic matter which reduces water storage capacity, polysaccharide count, nutrient supply, soil organic activity, and soil fertility and productivity. The conventional farm has less top soil. Water erosion on the chemical farm is four times that on the organic farm. Yields for the wheat crop are similar.

The authors conclude that the organic farm will be able to maintain its current productivity over the long term. The soil loss on the chemical farm is so severe that the topsoil may be essentially lost there within the next 50 years.

The crucial difference between the two farms appears to lie in the retention of a cover crop in the rotation of the organic farm. In forestry as in agriculture, the eschewing of synthetic chemical dependence generally leads to increased reliance on natural processes, soil health, and ecosystem strengths.

A clear discussion of the potential for Alternative D to increase longterm yield needs to be presented in the EIS, and a presentation of the uncertainty in estimating the relative longterm sustained yield for Alternative B versus D needs to replace the unsupportable conclusion that Alternative D will lead to a reduction of longterm sustained yield capacity when compared to Alternative B.

#### WHY THIS IS IMPORTANT

Alternative D is portrayed as having consequences for which there is no basis in the document. Presentations that reflect the range of reasonable consequences and the uncertainty in the data need to replace unexamined myths.

#### REFERENCES

1. Reganold, John P., Lloyd F. Elliott, and Yvonne L. Unger. November 27, 1987. Long-term effects of organic and conventional farming on soil erosion, Nature. Vol. 330.



## ECONOMICS

CHANGES NEEDED

1. The EIS must better explain the relationship between long-term sustained yield capacity (LTSYC) and the allowable sale quantities (ASQ).

Appendix B discusses the association of the LTSYC and ASQ. (B-26) Basically, the effects brought about from selection of one vegetation management alternative over another will not be manifest in changes in sale quantity in the first few decades (if then), since the ASQ is dependent on standing timber inventory. Established stands will primarily not be subject to or affected by management decisions influenced by this EIS.

As explained in Appendix B, ASQ will not be influenced at all in the first few decades on the forests that have a significant amount of their standing inventory comprised of slower growing, older stands. The forests that are operating closer to their LTSYC may need to make more significant adjustments in their ASQ.

Table II-4 predicts changes in jobs over the next decade for each of the alternatives considered in the Draft EIS. These changes (as well as changes in personal income and payments to local government) are also displayed in Figure II-3, pp. 22-23. The greatest bulk of effects on jobs, income, and local government payments is caused "by anticipated changes in timber harvest levels" that presumably are expected to take place in the next decade. (II-29) If these changes are not in fact expected over the next decade, they should not be presented as if they are.

Putting the economic picture in the larger context, Chapter IV mentions that national economic trends, "plus short-term conditions such as interest and employment rates and international trade agreements, have wide-ranging effects of much greater magnitude than the changes considered here (except for Alternative C)." (IV-129) The year-to-year variation in employment, income and payments to local government are well within yearly fluctuations. (IV-132) The community effects of Alternatives A, D, E, and F are not positive, but they are significantly less disruptive than the changes recently experienced by Oregon and Washington. (IV-132)

Despite the anticipated peculiarities of the Northwest economy, the Draft EIS fails to explain why there will be shortfalls in timber harvest levels in the next ten years when different alternatives are adopted.

2. The EIS should provide explanation for the significance of the economic and social changes that are expected in southwest Oregon.

Oddly enough, southwest Oregon is identified as the area in Region 6 where the economic and consequent social changes will be most pronounced. (II-29) Apparently, the job losses, personal income changes and reductions in payments to local governments would be experienced most adversely in this area. However, the text has no explanation for why this area is singled out, and there seems to be little justification for this.

The Siskiyou National Forest currently has a significant base of old growth stands. The Forest's ASQ is not close to its LTSYC. The area is not a likely candidate for the adjustments in ASQ that would be expected on a forest that is operating close to its LTSYC.

The economic impact predicted for southwest Oregon given the LTSYC and the ASQ is mysterious. Either provide adequate explanations for the statement, or delete the sentence from the EIS.

3. The results of the sensitivity analysis and the uncertainty of economic assumptions and calculations identified in Appendix B must be acknowledged in the EIS text.

Appendix B includes a discussion of the results of a sensitivity analysis of the economic analysis. (B-27-29) The changes in economic efficiency for the various alternatives was clearly most influenced by the allowable sale quantity. (B-27) Table B-8 shows the economic efficiency of the various alternatives: Alternative G looks most efficient followed by B, E, D, F, A, and C.

Elements of uncertainty and missing information are found in the assumptions that go into predicting allowable sale quantity. Many subjective opinions about the efficacy and feasibility of vegetation management entered into the analysis. Appendix B does address the points of uncertainty in the analysis. (B-24 to 27) One area of uncertainty is the growth rate of timber and its projected value into the future. Vegetation management is undertaken to benefit that growth rate, yet serious gaps in knowledge preclude a comprehensive understanding of all the interrelationships that influence growth.

Perry, Tappeiner, and McGinley addressed some of these problems in their literature review for the Siuslaw National Forest: "[O]utcomes at rotation age are not necessarily predictable by competitive interactions during the first few years of stand life."<sup>1</sup> Or: "The most consistent feature of studies on the effect of site preparation and release on tree growth in the Coast Range is the extreme variability among

## Economics

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sites...Release increases conifer growth in some cases and has no effect in others."

The capacity is great to overestimate the benefits or significance of vegetation management activity in the early years of a stand's life. Estimations of increases in timber yield resulting from presumed benefits of vegetation management may never be realized.

Further, current market conditions do not permit consideration of management for hardwood species (i.e., only softwoods are considered to be the marketable species). Although management for hardwood species (e.g., tanoak on some sites) may eventually be considered the wisest use of some land for timber production, it is currently only considered an economic loss.

Table B-9 (B-29) shows the economic efficiency of the various alternatives, assuming that the effect of the alternatives on the allowable sale quantity was only fifty percent of what was used in the analysis displayed in Table B-8. In other words, Table B-9 assumes that effect on the ASQ was overestimated by a factor of two in Table B-8. If the predicted shortfall in allowable sale quantity doesn't materialize, then the most economically efficient alternative is D.

The discussions in the EIS (both in Chapter II and IV) should include a frank disclosure of the uncertainty and the relevance of overestimating the predicted shortfall in the allowable sale quantity. Figure II-3 that displays how the alternatives respond to issues should contain a range for the change in present net value.

4. Explain why there would be minor reductions in effectiveness on some existing problem sites under Alternative D. (Figure II-3, pages II-22 and 23)

Alternative D is designed to manage vegetation on a site-specific, ecologically sound basis. The problems would be addressed. All tools are available for consideration under Alternative D. There is no reason why a reduction in effectiveness would be any more likely under Alternative D than an increase in effectiveness. (See NCAP comment on "productivity".)

#### WHY THIS IS IMPORTANT

Silvicultural predictions about the benefits of vegetation management have major effects on economic forecasts. As stated in the chapter on environmental consequences (Figure IV-1, page IV-8), the uncertainty and missing information surrounding the biological effects of vegetation management must be disclosed and the relevance discussed in the EIS text. The relevance is that

the outcomes of economic predictions vary significantly, and this should be noted in the text.

REFERENCES

1. Perry, D.A., J. Tappeiner, and B. McGinley. 1985. Phase I - Early Successional Patterns, Competition Between Trees and Associated Vegetation, and Efficacy of Vegetation Control Techniques. Corvallis, OR: College of Forestry, Oregon State University.

## SECRET INGREDIENTS

CHANGES NEEDED

\*1. Discuss the relevance of missing and uncertain information regarding the secret ingredients in all herbicide formulations proposed for use.

Your discussion of secret (so-called "inert") ingredients in herbicides is inadequate (IV 116-117). Several points must be clearly made to the reader:

a. Neither the Forest Service nor the public is able to find out what chemicals other than the revealed ingredient are present in the herbicide formulations it proposes to use.

b. The full formulations have not been tested for cancer, birth defects, reproductive effects, or genetic, nerve, or chronic damage.

You have not clearly explained this in your "inert" ingredient discussion (DEIS IV 116-117). You have simply said "Not considered in this characterization of risk for 16 herbicides are the formulations that are actually used in the field." I recently mentioned at a Siskiyou National Forest meeting the fact that full formulations are not tested for the major health damage effects and one of the Forest Service people who has been following the herbicide risk issue fairly attentively indicated he had never realized that.

c. Secret ingredients are added as solvents, preservatives, emulsifiers, surfactants, aerosol propellants, dyes, stabilizers, and anti-volatility agents (see Attachment B).

On IV-116, you merely say secret ingredients are "used as carriers." In the glossary, your definition of "formulation" indicates that it is "A chemical mixture that includes a certain percentage of active ingredient (technical chemical) with an inert carrier." This definition is not accurate.

d. Approximately 800 of the 1,200 (not 1,500 as stated in DEIS IV 117) secret ingredients in pesticide formulations are of unknown toxicity and might therefore be found to cause any of the full range of toxic effects (e.g., cancer, reproductive effects, immune suppression, birth defects) were they tested in laboratory animals (Attachments A, B).

(You have mentioned these ingredients in the fourth full paragraph on IV-117, but you have not indicated that there are 800 and you did not make clear that any of them might cause any of the health damage effects for which revealed ingredients are supposed to be tested.)



\*2. Give examples of known problems with secret ingredients so that readers understand the relevance (40 CFR 1502.22) of this missing and uncertain information.

(a) Roundup, for instance, contains surfactants that have been found to be much more toxic than glyphosate to midge larvae and some fish (e.g., rainbow trout, fathead minnow, and bluegill) (Roundup Fact Sheet, ref. #5). Summaries of Monsanto studies indicate that surfactants in Roundup caused "severe local skin reactions and testicular effects" in rabbits exposed to Roundup at use level and five times use level (Roundup Fact Sheet, ref. #6).

(b) Ammonium thiocyanate is an ingredient added to amitrole in some commercial formulations. More acutely toxic than amitrole, ammonium thiocyanate is also an antithyroid chemical, and inhibits the breakdown of amitrole (Amitrole Fact Sheet, ref. #7). Although known to be toxic and a goiterogen, and although the EPA indicates that it appears in four herbicides (Attachment C), ammonium thiocyanate does not appear on any of the published lists of inert ingredients released by the EPA. It may be one of the 200+ ingredients that are blacked out on the list of inert ingredients (Attachment D).

(c) The simple change of some secret ingredients in Omite (propargite) formulations recently caused the largest outbreak of pesticide-associated dermatitis (114 of 198 orange pickers) ever reported in California, with one-third of the cases reporting peeling of skin, indicating severe dermatitis.(1) While this pesticide is not one proposed for use in this EIS, the authors of the article reporting this incident note, "This episode underscores the importance of inert ingredients and their potential to compromise the safety and health of the worker." (Emphasis added.)

(d) The Labat-Anderson "quantitative risk assessment" notes that the herbicide formulation Fogard S (25 percent atrazine and 37.5 percent simazine) was found to cause malignant lymphomas in mice. While not mentioning the possibility that either atrazine or simazine alone or in combination may have caused the cancer, Labat-Anderson notes that "tumor formation in this study may have resulted from other chemicals in the formulation" (Appendix D, Attachment A, p. 10). Such a possibility, that secret ingredients alone or in combination with the revealed ingredient(s) may cause cancer, is never explicitly noted in either the Labat Anderson discussion of "inert" ingredients (Appendix D, Section 3, pp. 27-28) or in the DEIS text discussion (DEIS IV 116-117.)

Note: The Labat Anderson discussion of inerts is objectionable for its misleading characterization of the significance of missing information about the secret ingredients. Since there has been essentially no toxicity testing done on 800 of the secret ingredients, it assures the reader that "no specific concern exists with the herbicides' inerts." Since there has been practically no testing done of full formulations, it assures the reader that "The possibility that the herbicides' formulations may pose greater risk than their components is largely an untested hypothesis."

The viewpoint "adopted in this analysis," continues Labat-Anderson, is that "the data gaps about the herbicides as formulated products are considered insignificant since the risks posed by the herbicides active ingredient are over stated." (Note: This is a non sequitur.) "Any risk posed by the herbicides as formulated products is considered to be embraced in the analysis of the active ingredients." (Appendix D, Section 3, p. 28, emphasis added).

Aside from being logically bankrupt, this directly contradicts the experience of 114 California orange pickers cited in 2(c) above. The authors of the article reporting the Omite incident note, "The apparent failure within the CDFA [California Department of Food and Agriculture] pesticide registration process to recognize that the inert ingredients in the 'CR' formulation could result in slower propargite degradation or other adverse change resulted in no additional registration requirements being requested beyond that for Omite-30W.... It appears that residue degradation was not given adequate consideration in the registration of Omite-CR, thus compromising the safety of the worker." (2) (Emphasis added.)

\*3. Indicate the exact formulations the Forest Service intends to use (including the percent by volume of secret ingredients) and indicate the results of acute toxicity tests for each of these formulations. Provide background documentation that the acute toxicity tests have actually been performed ON THAT FORMULATION. When these acute toxicity tests have not been performed, clearly indicate that you therefore are missing even this minimal, limited information on the full formulations you will be spraying.

Only three health damage tests are required for registration of full formulations, and they are only short-term tests, indicating only acute toxicity: LD50, dermal (skin) sensitization, and eye irritation.

As mentioned in my December 19, 1987 letter to you (Attachment E), Ralph Lightstone, a California attorney who specializes in pesticide registration and pesticide suits, has been informed by a California Department of Food and Agriculture toxicologist that even these acute toxicity tests have not been performed for most pesticide formulations. Instead, the pesticide manufacturers have submitted acute toxicity data presumably gathered on a similar formulation as data for another formulation. The data presumably gathered on the other formulation turn out often to have been presumably gathered on another formulation. The outcome is that there are in fact almost no data on full formulations. An investigation of this situation may soon be undertaken in California, according to Lightstone (who is fun to play ping pong with ☺).

The Forest Service must find out whether data have been gathered on the full formulations they intend to use, because these may be the only human health damage data ever gathered on the secret ingredients in those formulations. The EPA indicates there are no toxicity data for most of the ingredients allowed in pesticides (Attachments A, B); no acute toxicity data for the full formulation might mean that nobody has

the faintest idea what effects those ingredients alone, or in combination with the known ingredient, may have. It is appalling enough that the formulations have never been tested for major health damage. It is morally inexcusable to expose workers or the public to a formulation that has not even been tested minimally for acute toxicity. Furthermore, it is a violation of NEPA to fail to indicate the potential significance of such missing or uncertain information.

4. Indicate that whether or not the secret ingredients and revealed ingredient(s) are in fact acting synergistically is simply not known.

The following sentence is misleading: "There is little or no information available for evaluating the possibility that some of these 16 herbicides may interact with the inert ingredients to increase or decrease toxicity." (IV-117)

There is plenty of information that the possibility exists: chemical synergism is a well-established fact. There is essentially no information that will either (a) assure us that it will not take place with the proposed formulations nor (b) warn us that it will take place. The data gap is a serious one.

Your sentence implies that ignorance about the secret ingredients is bliss; the experience of the California farmworkers demonstrates that such ignorance is unconscionable.

WHY THIS IS IMPORTANT

The fact that the Forest Service does not know what chemicals it is spraying will be of increasing public concern as the public becomes more aware of the situation with secret ingredients. The Forest Service is not able to tell the public that it knows what risks may be posed by these chemicals, it is not able to trace the fate of these chemicals in the forest environment or people's drinking water (because it doesn't know what they are), and it is having to say to its workers that they do not have a right to know what chemicals they are being exposed to.

Secret ingredients pose a major data gap that falls under the guidance of 40 CFR 1502.22. The Forest Service is under an obligation to indicate the range of impacts these formulations may have. That some secret ingredients have been shown to be carcinogens, neurotoxins, aquatic organism toxins, reproductive toxins, etc. is undeniable. That the Forest Service does not know whether the secret ingredients used in their herbicide formulations may pose such risks is undeniable.

REFERENCES

1. Saunders, L. Duncan, Richard G. Ames, James B. Knaak, and Richard J. Jackson. 1987. Outbreak of Omite-CR-induced dermatitis among organophosphate pickers in Tulare County, California. J. Occup. Med. 29:409-413.

ATTACHMENTS

- A. U.S. Environmental Protection Agency memorandum from John W. Melone, Director, Hazard Evaluation Division, to Phil Gray, Executive Secretary, FIFRA Scientific Advisory Panel, February 11, 1984. Criteria for determining which inert ingredients are of toxicological concern and should be given priority review.
- B. U.S. Environmental Protection Agency discussion paper on inerts prepared for the Administrator's Pesticide Advisory Committee, October 25, 1984.
- C. U.S. Environmental Protection Agency. May 18, 1987. Freedom of Information Act response to NCAP.
- D. U.S. Environmental Protection Agency. May 6, 1987 cover letter to lists of chemicals used as inert ingredients in pesticides.
- E. Letter from Mary O'Brien, NCAP, to Region 6 Forest Service Vegetation Management EIS Team, December 19, 1987.



2.4-D

CHANGES NEEDED

\*1 Supplement the current discussion of 2,4-D with new information.

(a) On December 2, 1987, the widow and son of a Region 6 Forest Service worker were awarded \$1.5 million in a jury trial that found The Dow Chemical Company strictly liable for having sold a product (2,4-D) rendered defective by the chemical company's failure to warn users that the herbicide is a potent toxin and a probable carcinogen (Attachment A).

Central to the trial was a 1978 report by a Dow analytical chemist named Krumel, indicating that the contaminants in 2,4-D render the herbicide highly toxic. The Krumel report was never released to the public by Dow; the report is currently under court protective order. The Forest Service should speak with the plaintiffs' attorney, Scott Baldwin, Jr. (see Attachment A) and attempt to obtain the partially blacked-out Krumel report that served as evidence in the jury trial. NCAP has requested the EPA to obtain a copy of the report and release it to the public.

If Dow Chemical Company succeeds in blocking release of this evidence to the Forest Service, the EIS should acknowledge the existence of the report (Scott Baldwin, Jr. will attest to its existence and general nature) and indicate that the report is being held as property of The Dow Chemical Company.

In addition, Scott Baldwin, Jr. indicates there was a second internal Dow report obtained as evidence for the trial, indicating that 2,4-D exposure is likely to be associated with an increased risk of cancer. The Forest Service should likewise attempt to obtain this Dow report.

(b) A 1986 study by the German analytical chemist, Hanspaul Hangenmaier has found 2,3,7,8-tetrachlorodibenzo-p-dioxin in 2,4-D produced by EGA-Chemie in Germany (Attachment B). This study is of importance because 2,3,7,8-TCDD (a) is one of the most toxic compounds known to humans; and (b) has been previously found in 2,4-D produced in the United States (see Attachment C, ref. #2).

I am aware that Hagenmaier was testing German 2,4-D samples, but I am unaware of any recent testing of commercial formulations of 2,4-D for 2,3,7,8-TCDD in the United States. Moreover, I am unaware of any testing of U.S. formulations that has used the analytical method cited by Hagenmaier, which allows the selective determination of 2,3,7,8-TCDD in the presence of a large excess of other dioxins and furans.

Hagenmaier's study raises the question of whether the 2,3,7,8-TCDD that had been earlier found in U.S.-produced 2,4-D was in fact there (as

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claimed by the EPA) only because the 2,4-D had been produced on machinery that had previously been used to produce 2,4,5-T which was known to be contaminated with 2,3,7,8-TCDD.(4)

The EIS needs to discuss Hagenmaier's finding and the possibility that were current U.S. commercial formulations of 2,4-D to be tested with an adequate analytical method, 2,3,7,8-TCDD might be found as a contaminant of 2,4-D.

(c) To add to the phenoxy herbicide and 2,4-D epidemiological data cited by the DEIS as raising concerns about 2,4-D, lung cancer, and malignant lymphoma, the Veteran's Administration (VA) has recently released a study finding that Marines who served in Vietnam are dying of lung cancer and non-Hodgkins lymphoma at significantly increased rates.(1) As with all other VA studies, degree of exposure to Agent Orange (a 50-50 mixture of 2,4-D and 2,4,5-T) was not examined in the study, but the Marines were disproportionately front-line troops and served longer in heavily sprayed areas than soldiers of other U.S. military organizations.

\*2. Policy note: The Forest Service should entirely eliminate use of 2,4-D and 2,4-DP from Region 6.

When concerns regarding 2,4-D are assembled in one place, the Forest Service may be hard-pressed to justify any use of 2,4-D and 2,4-DP:

a) Phenoxy herbicides are associated with lung cancer among humans in a number of studies (DEIS IV-96 and (c) above). This means people are suspected of having died from exposure to phenoxy herbicides.

b) Phenoxy herbicides are associated with non-Hodgkin's lymphoma in humans in a number of studies (DEIS IV-99 and 1(c) above). These studies indicate that humans have died from exposure to phenoxy herbicides, including 2,4-D.

c) Two studies have found an association between exposure to phenoxy herbicides and stomach cancer in humans and two have found an association with soft tissue sarcoma in humans (DEIS IV-97, 99).

d) Numerous humans have experienced delayed neuropathy following even short or mild exposures to 2,4-D (DEIS H-118, 2,4-D Fact Sheet, refs. #15-18).

BLM workers exposed to drift of aerially applied 2,4-D have experienced slowed nerve conduction velocity (I believe EIS Team member Nick Heyer has received information on that incident from Ruth Shearer.)

e) 2,4-D has been found to have a low (i.e., high toxicity) NOEL for chronic toxicity (DEIS H-16), and for reproductive effects (DEIS H-94) in laboratory studies. No NOEL was found for developmental effects

in a rat study; ossification of the skeleton was observed to be delayed even at the lowest dose tested (12.5 mg/kg/day) (DEIS H-103).

f) 2,4-D or its metabolite 2,4-dichlorophenol have been associated with immune system effects in laboratory experiments (DEIS H 118-H 119).

g) 2,4-D has exhibited genetic damage activity in at least nine adequate studies, four studies that have not been reviewed by a separate agency, and four studies that are uncommon. The genetic activity observed has included point mutations, DNA damage, chromosomal aberrations in Drosophila, mammalian cell cultures, in vivo human studies, plant material assays, and in humans, and cell transformation in human fibroblasts. (DEIS H-58,59)

We have no way of knowing how many humans may already have suffered genetic damage from exposure to 2,4-D, but the reason mutagenicity batteries are run is because they supposedly warn us that such damage may take place in humans. Will we heed over a dozen such warnings for 2,4-D?

h) Contaminants that have been found in 2,4-D products include di-, tri- and 1,3,6,8 tetrachlorodibenzodioxins (2,3) and 2,3,7,8-TCDD (Attachments B,C).

The EPA has allowed Vertac Chemical Company to dispose of 2,4-D wastes containing 2,3,7,8-TCDD (4) by recycling them "into the manufacturing stream [of 2,4-D]; Vertac anticipates that the existing inventory of 2,4-D wastes will be thus depleted by late 1985." (5) (Emphasis added.) The 2,4-D wastes "contain TCDD because the equipment used to produce 2,4-D had been used previously to produce 2,4,5-T, and the equipment remained contaminated with TCDD after production shifted from 2,4,5-T to 2,4-D." (4)

Four amine formulations of 2,4-D have been found to be contaminated with N-nitroso compounds (2,4-D Fact Sheet, ref. #20), one of which (diethylnitrosoamine) has been found to be a potent carcinogen in all 20 animal species in which it has been tested (2,4-D Fact Sheet, ref. #21).

The "secret" Krumel report prepared by a Dow analytical chemist indicates that contaminants known by Dow to be present in 2,4-D render the herbicide extremely hazardous to humans.

There is a great deal of evidence that 2,4-D may contain a variety of contaminants of concern.

i) 2,4-D has been found in California drinking water wells (2,4-D Fact Sheet, ref. #7), in ponds and ephemeral streams below sprayed units several weeks after spraying (2,4-D Fact Sheet, refs. #8, #9), and in sediments or groundwater for ten or more months (2,4-D Fact Sheet, refs. #4-#6).

j) In response to a National Cancer Institute study suggesting that occupational exposure to 2,4-D is associated with significantly

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increased rates of non-Hodgkin's lymphoma in humans, Chem Lawn, the nation's largest chemical lawn treatment company, has eliminated use of 2,4-D from its treatments. Chem Lawn is clearly wishing to avoid liability for malignant lymphoma among their employees.

#### WHY THIS IS IMPORTANT

Use of 2,4-D is extremely provocative to many in the public. It was one-half of Agent Orange. It has been shown to be associated with deaths of humans by cancer in a number of studies. It has been found on more than one occasion to contain traces of 2,3,7,8-TCDD. It is an herbicide that has been found in drinking water wells. A worker may have recently died because of using 2,4-D working on the Rogue River National Forest in Forest Service hack-and-squirt operations. Dow is refusing to let the public see what it knows about 2,4-D's contaminants.

Clearly, 2,4-D is an herbicide about which we know more than many herbicides. Perhaps when we know what we should know about the other herbicides, we will find many of them to be equally hazardous. What we know about 2,4-D is worrisome, however, and the Forest Service should consider what message it is sending to the public if it decides to use 2,4-D aerially or with ground workers.

2,4-D is a particularly offensive herbicide to many in the public and it poses a fairly major moral question for the Forest Service: Aware that 2,4-D may have killed many humans, does the Forest Service decide to continue using it?

#### REFERENCES

1. Breslin, Patricia, Han Kang, Yvonne Lee, Vicki Burt, and Barclay Shepard. 1987. Proportionate mortality study of Army and Marine Corps veterans of the Vietnam war. Washington, DC: Veterans Administration, Office of Environmental Epidemiology.
2. Cochrane, WP, J Singh, W Miles, B Wakeford, J Scott. Undated, but likely 1980. Analysis of technical and formulated products of 2,4-dichlorophenoxy acetic acid for the presence of chlorinated dibenzo-p-dioxins. Ottawa, Ontario: Canada Agriculture. (Included in an October ?, 1980 Pesticide-Use Advisory Memorandum No. 266 from Einar Roget, USFS Integrated Pest Management Work Group to Regional Foresters, Station Directors, and Area Directors.)
3. Analyses for di and tetra chlorinated dibenzo-p-dioxins in 2,4-D. January 16, 1981 memorandum from Robert Harless HERL, ETD, ACB (MD-69), U.S. EPA to Mike Dellarco, Office of Toxic Substances, U.S. EPA.
4. U.S. Environmental Protection Agency Dioxin Task Force Meeting Summary, September 24, 1981, including as an attachment an advanced notice of proposed rulemaking regarding tetrachlorodibenzo-p-dioxin disposal.

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5. U.S. Environmental Protection Agency Chlorinated Dioxin Work Group Meeting #13 Summary, April 2, 1982.

ATTACHMENTS

A. December 9, 1987 Letter from plaintiffs' attorney, Scott Baldwin, Jr., to Mary O'Brien and December 3, 1987 press release regarding the Ann I. Greenhill, et al. v. Dow Chemical Company.

B. Hagenmaier, Hanspaul. 1986. Determination of 2,3,7,8-tetrachlordibenzo-p-dioxin in commercial chlorophenols and related products. Fresenius Z. Anal. Chem. 325:603-606.

C. July 22, 1987 letter from Mary O'Brien to Charles Luscher, Director, Oregon State Office, Bureau of Land Management.

D. U.S. Environmental Protection Agency. 1984. Health and environmental effects profile for: tetra-, penta-, and hexachlorodibenzo-p-dioxins. Program office draft ECAO-CIN-P004, January.

## WILDLIFE

CHANGES NEEDED\*1. Expand the discussion of potential effects of herbicides on wildlife.

A. The current discussion of herbicide effects on wildlife is two pages long (DEIS IV 69-71) and is extraordinarily simplistic. A few reviews are cited, the general conclusions of which are contradicted by evidence on specific herbicides and unsupportable by the scanty data base available on lethal, sublethal, acute, chronic, indirect, and cumulative effects of either the revealed ingredients or the full formulations (which may include solvents, preservatives, and petroleum distillates that may exert independent effects or interact synergistically with the revealed ingredient(s)).

A range of concerns that need to be addressed was submitted by NCAP to the EIS team: "What Do We Need to Know to Estimate Risk to Wildlife From Vegetation Management Practices?" (Attachment A); and "Presentation of Herbicide and Slashburn Risks to Wildlife in the EIS" (Attachment B). Both of these papers in turn included attachments; please contact NCAP if you are missing any of them.

The EIS must:

- 1) Discuss the range of wildlife types, impacts (e.g., elimination of food/nutrient sources, habitat disruption, elimination of predators or prey), and toxic effects potentially involved.
- 2) Discuss the types of information that would be needed to assess risks (e.g., information on the species, the effects of the herbicide on target and nontarget species, and the environmental fate of the toxins).
- 3) Discuss the types of information that are generally missing and the potential significance of the absence of such information.

\*2. Identify studies on individual revealed ingredients or formulations that raise concerns about specific herbicides.

As identified in the NCAP Pesticide Fact Sheets, for instance, amitrole has been found to depress microorganism populations and nitrification in the soil (Amitrole Fact Sheet, ref. #9), a factor of potential importance for nurseries and tree growth. Amitrole has been found to persist in tomato plants for months (Amitrole Fact Sheet, ref #11), a factor of potential importance for browsing wildlife.

Asulam is of concern in part because, as a 1986 asulam review indicated, "No information is available on the toxicity of asulam to



mammalian wildlife or livestock...or [on] the chronic toxic effects of asulam exposure to aquatic organisms" (Asulam Fact Sheet, ref. #8).

An extensive Wisconsin study of the decline of leopard frog populations found atrazine to be present in the frogs and many of the frogs to be experiencing degenerative liver changes, implicating toxic substances (Atrazine Fact Sheet, ref. #5). Atrazine is highly toxic to certain aquatic invertebrates as well (Atrazine Fact Sheet, ref. #7). Since atrazine is persistent in water and is probably the pesticide most frequently found in groundwater in the United States (Atrazine Fact Sheet, refs. #2, #1), a picture of concern regarding atrazine use emerges.

NCAP urges the Forest Service to consider the various wildlife studies cited in NCAP's Pesticide Fact Sheets (which we enclose) and to browse ( ) through NCAP's fairly extensive files on individual herbicides if that will help locate studies that exist regarding potential impacts of specific herbicides and herbicides in general on wildlife.

3. Discuss the possible habitat alteration effects peculiar to herbicides.

In both the Wildlife section (DEIS IV-69) and Riparian Resources and Fisheries section (DEIS IV-72), the assumption is made that habitat alteration is not unique to chemical methods of vegetation management, and so warrants no particular discussion.

Tom Turpin, for instance, notes in his paper on silviculture without herbicides on the Siuslaw National Forest, "The vegetation on harvested areas is recovering much faster, thus the areas are providing cover and forage sooner. When herbicides are used, the regrowth of vegetation was delayed for 2 to 3 years, and in some cases the target species never resprouted. This was often the case when glyphosate was used on salmonberry." (Attachment C)

Turpin also notes that without herbicides a greater diversity of plant species is available to wildlife, more vegetative protection for tree-eating rodents is available, and usable forage may be present longer if crown closure takes place 2 or 3 years later. (Attachment C)

Aerial spraying has different implications for habitat loss than selective removal of individual plants. Describe some of these.

As you note in your discussion of the advantages of herbicide methods, "In many cases the effects are relatively long lasting." (DEIS II-80.) If you are going to claim that herbicides have particularly long lasting effects on vegetation, you must discuss the implications for wildlife of using a method that has particularly long lasting effects on their vegetative habitat and food sources.

4. Correct the discussion<sup>1</sup> of bioconcentration factors in fish.

(a) You have cited bioconcentration factors for four revealed ingredients (DEIS IV 73). What of the other twelve revealed ingredients proposed for use? If you are missing information on any of the other twelve, the implication that these herbicides will not bioconcentrate is misleading. Indicate what information you do and do not have.

(b) You indicate that one source has said glyphosate bioconcentrates three times (Norris et al. 1983, cited in DEIS IV-73). Folmar, Sanders, and Julian (1979; Roundup Fact Sheet, ref. #5), however, report that in rainbow trout "exposed to 2.0 mg/L of Roundup the fillets contained 80 mg/kg of glyphosate and the eggs contained 60 ug/kg." Given that Roundup is only 41% glyphosate, this would indicate a bioconcentration of about 80 times.

5. Discuss your sources for the claim that "repopulation" of an aquatic area depleted because of toxic herbicides "would occur through local survivors, migration, or hatching (DEIS IV-73).

This is a generalization commonly used to excuse or downplay the significance of poisoning an aquatic or terrestrial system. Variability among species in terms of niche requirements, susceptibility to specific toxins, precariousness of current populations, etc. would seem to preclude a blanket statement like that.

Very few longterm studies have been done of population recovery in aquatic or terrestrial systems; as a study of a sprayed jeffrey pine plantation found, reduction of resident bird species and numbers were not noted two years after spraying, but were found six years after spraying (Savidge 1978, Attachment A).

6. Discuss the role that secret ingredients in the herbicide formulations can play in terms of synergistic and cumulative effects.

No discussion of cumulative and synergistic effects is offered for wildlife, but in the Riparian Resources and Fisheries section (DEIS IV-75), the statement is made that "Simultaneous exposure to more than one herbicide formulation is highly unlikely..."

The presence of unrevealed solvents, preservatives, surfactants, emulsifiers, petroleum distillates, etc. in formulations raises the concern that synergistic and cumulative effects may be experienced by wildlife.

Surfactants added to Roundup have been found to be much more toxic than glyphosate to midge larvae and fish such as rainbow trout, fathead minnow, and bluegill (Round Fact Sheet, ref. #5). While this may be a case of independent toxicity rather than synergism with glyphosate, the example raises the spectre that the unrevealed ingredients may increase the toxicity of the revealed ingredient(s) or of the formulation as a whole.

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7. Correct the statement that "In the forest environment, exposures [to herbicides], if they occur at all, are predominantly short-term acute exposures." (IV 72).

2,4-D has been found in ponds and ephemeral streams below sprayed units several weeks after spraying (2,4-D Fact Sheet, refs. #8, #9).

Triclopyr has been found in runoff water in an Oregon watershed nine months after application and 59 inches of rainfall (Triclopyr Fact Sheet, ref. #5). Triclopyr residues were found in cowberries 92 days after application (Triclopyr Fact Sheet, ref. #11). The Garlon (triclopyr plus secret ingredients) states, "Do not graze treated forage." You indicate on p. 7 of Appendix C that "Treated areas should not be grazed for one year following application." If a wild browser or grazer is present in a treated area, is exposure short term and acute?

Other examples can and need to be cited.

#### WHY THIS IS IMPORTANT

1. Wildlife eat, drink, breathe, move, and sleep in an environment that has been sprayed. Were humans sprayed directly and told to lick themselves clean, sleep there, gather all their food there, and drink water only from the sprayed source, we would have a situation similar to that of some wildlife in a sprayed area.

The risk of herbicides to wildlife can no more be accurately characterized by referring to LD50s than can the risk to humans.

The data base on direct, indirect, sublethal, and lethal effects of herbicide formulations on wildlife is scanty and falls under the NEPA requirement to discuss the relevance of missing and uncertain information (40 CFR 1502.22).

Available studies of direct and indirect effects of herbicide formulations on wildlife must be discussed in the EIS, because they are environmental impacts of the proposed alternatives (40 CFR 1502.22). Forest managers must be aware of what they may be doing to wildlife when they spray a particular herbicide.

#### ATTACHMENTS

A. "What Do We Need to Know to Estimate Risk to Wildlife From Vegetation Management Practices?" NCAP Memorandum to EIS Team.

B. "Presentation of Herbicide and Slashburn Risks to Wildlife in the EIS." NCAP Memorandum to EIS Team.

C. Turpin, Tom. 1987. Successful silvicultural operations without herbicides in a multiple use environment. Paper presented at the National Silviculture Workshop, Sacramento, CA, May 11-14.

## DRIFT AND BUFFERS

### CHANGES NEEDED

1. Environmental conditions must constitute a larger factor in determining drift potential.

In the discussion of herbicide mitigation measures (II-81 to 84), various environmental factors appearing on the label, in environmental assessments, and in permits are considered for "timing of application in relation to rainfall". (Point #3, II-81)

These environmental concerns should also apply to "timing of application in relation to drift reduction".

2. Spray applications should include a displacement zone inside the spray boundary that will receive the unavoidable displacement from spray applications.

For aerial applications, several sources recommend flying some distance inside the unit boundary, after setting the unit boundary at the edge of a given buffer from the area needing protection.

The Canadian Forestry Service researcher suggests determining a level of "acceptable damage" (to resources such as aquatic organisms), then setting a buffer width that presumes the damage will stay within the level of acceptability. The spray unit boundary would be set at this buffer distance. However, the unit should be sprayed by flying one swath width inside the unit boundary to account for the displacement of sprays during aerial application.<sup>1</sup>

Arizona Extension Service suggests accounting for a 300 foot "swath displacement" on the downwind side of the aircraft before determining the buffer zone for protection of sensitive areas or species.<sup>2</sup>

A Forest Service researcher, George Markin, conducted a study in a mountainous area on the east slope of the Washington Cascades and found that an area 300 to 500 feet downhill and downwind of the plane can be expected to receive as much pesticide as the area within the spray plot.<sup>3</sup>

Current Region 6 mitigation measures discuss only a buffer zone starting at the edge of the spray unit. A policy should be adopted that includes consideration of the inevitable swath displacement from applications. The buffer zone outside the spray unit boundary should not be the site of swath displacement.



3. Buffers should be expanded to increase protection for aquatic and water resources.

The Draft EIS claims that adherence to the herbicide mitigation measures "should prevent contamination of surface waters." (IV-47) (Emphasis added.) This claim of preventing contamination is not substantiated in the literature nor in the Draft EIS. The Draft EIS talks about the 32 water samples from Forest Service spray operations between 1980-83 where contamination was documented.

The buffers described in point #7 (II-82) are wholly inadequate. For instance, nozzles can emit spray into the air 100 feet from Class I-III streams and 50 feet from Class IV streams. If the Forest Service researcher Markin is correct, this 100 foot buffer zone would do nothing to protect streams.

One hundred foot buffers were used along streams in the 1982 and 1983 Forest Service spruce budworm spray program in northeastern Oregon.<sup>4</sup> In 1982, nine of the 14 streams tested (64%) had positive insecticide residues. In 1983, drift cards were placed on right and left stream banks, and 11 of the 17 streams monitored (69%) were hit with drift. Thirteen of the 15 streams monitored for residues (87%) had levels ranging from 1.2 parts per billion to 53 ppb.

Coos Bay District BLM fisheries biologists found contamination of 9 of the 11 streams they monitored, even though 200 foot buffers were used for Class I streams and 100 foot buffers were used for Class II streams. They stated that the likelihood of herbicides reaching the streams with 200 foot buffers was 70%. The researchers state, "However, the main point here is that with all the precautions that were taken, contamination of stream systems and violation of buffer strips still occurred."<sup>5</sup>

The Canadian Forestry study assumes a 10% loss of aquatic organisms to be acceptable and calculates a downwind buffer beyond the spray boundary of 50 feet for ground applications and 759 feet for aerial applications. Crosswind buffers are calculated at 16.5 feet for ground and 132 feet for aerial applications.<sup>1</sup> These calculations are made assuming that residues still get in the water and aquatic organisms are killed with these buffers.

Due to cold air drainage patterns that move with speeds ranging from a few hundred feet to several miles an hour in the mountainous area of the eastern slope of the Cascades, drift was detected 2000, 5000 and 7000 feet downhill from treated plots.<sup>3</sup>

Monsanto's label for Roundup specifies restrictions for aerial applications on silvicultural sites and rights-of-way.

"In order to reduce the drift hazard to non-targeted plants and aquatic species when making aerial applications, maintain the following buffer zones: Do not apply this product within 200 feet of any agricultural, horticultural, park, golf course, homestead, or any populated areas...When making applications on rights-of-way from 75 feet or more above ground level, do not apply within 400 feet of any agricultural, horticultural, park, golf course, homestead, populated areas, lakes, ponds and streams used for significant domestic purposes or angling." (Emphasis added.)

The label itself recommends greater buffers than the Forest Service.

The EIS must discuss the studies described above and establish buffers that have some basis in reality. A "buffer" that defies what is known about aerial drift is not a buffer.

The following minimum buffers should be adopted for aerial applications:

- a. Wetlands and lakes: minimum 500 feet.
- b. Class I, II, and III streams (including springs that are used for domestic water sources): minimum 500 feet.
- c. Class IV streams: minimum 200 feet whether the stream is flowing or not (current language on page II-82 provides for a buffer only if the stream is flowing!)

Despite managers' best efforts, drift causes damage. Buffers are ineffective in preventing all damage, and protective zones need to be expanded to reduce that damage.

3. Buffers should be established around residences, school busstops, pasture, and fields.

For these situations, a minimum 1,000 foot buffer (after accounting for swath displacement) should be established.

4. Buffers should be established around schools and campgrounds.

A minimum half mile buffer should be established around schools and campgrounds.

5. Buffers should be considered for sensitive areas such as important wildlife nesting or birthing areas.

A minimum half mile buffer should be adopted for endangered and threatened species. A minimum thousand foot buffer should be adopted for other important habitat or forage for wildlife.

6. Ultra-low volume (ULV) applications should not be considered for use.

ULV applications use less volume of pesticide by making small droplets that cover greater area. The consequence of this type of application is the tendency to drift. (See Attachment A, article on drift by Norma Grier). Forest Service should avoid these formulations and applications that result in such great drift potential.

#### WHY THIS IS IMPORTANT

Aerial application is an uncontrolled technology and drift is unavoidable. Without question, aerial applications will result in some herbicide getting into streams, drinking water, and onto people's homes, gardens and pastures. The Forest Service should not act as if the proposed buffers will protect people or other resources. They are essentially useless. Acknowledge that aerial applications cause damage and unintended effects and acknowledge the literature that discusses drift in mountainous terrain.

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PESTICIDES IN SOIL

CHANGES NEEDED

\*1. Alter untenable generalizations about the ability of herbicides to persist in soil, travel through soil, and enter water.

There is always a major problem with generalizing about the 16 proposed "herbicides." As in the wildlife section (DEIS IV 69-71), the DEIS makes generalizations that are untenable given what is known about certain of the herbicides.

a. "In the forest, herbicides generally are immobilized quickly and almost completely (Norris et al. 1983)." (DEIS IV-20)

"Most herbicides are relatively immobile in soils and do not perseist long encought to travel more than a short distance through the soil (Norris et al. 1983)." (DEIS IV-45)

A quick perusal of the "Norris et al. 1983" reference locates two unreferenced quotes from which this generalization may have been made: "Most chemicals used in forestry are relatively immobile in soil" and "Most forest chemicals do not persist long enough for significant leaching to occur" (Norris et al., p. 7) (1).

For one thing, this is different than saying that in the forest herbicides are immobilized, and for another, the statements are false. Seven of the 16 herbicides proposed for use in the DEIS are considered highest priority leachers in the U.S. EPA's upcoming National Pesticides Survey of groundwater contamination.(2) Atrazine is probably the most common groundwater contaminant in the country (3) Bromacil, dalapon, dicamba, hexazinone, picloram, and simazine are on the highest priority list. Diuron is on the second highest priority list, and 2,4-D is being considered for inclusion. (2)

The EPA has described its criteria for chemical selection for what pesticides it considers to be likely contaminants of groundwater (see Attachments A and B), and has described those characteristics of concern for the herbicides it initially chose for inclusion as priority potential groundwater contaminants (Attachment C). This information should be included in the DEIS and the generalization that the herbicides are generally immobilized "quickly and almost completely" and therefore are unlikely to leach should be eliminated. It is insupportable.

b. "Since the half-life for each of these herbicides [2,4-D, glyphosate, and triclopyr] is well under two months (see Table IV-10), most of the chemical will be degraded prior to broadcast burning [five to seven months later]." (DEIS IV-21)



First of all, degraded to what? The chlorines present in the parent compounds (only some of which you are allowed to know are present) do not just "go away." The presence of chlorines from spraying and phenols in wood offer the potential to produce 2,3,7,8-TCDD and other dioxins and other contaminants when burned.(8)

Secondly, you are not accurate. A sandy loam treated with glyphosate at recommended application rates was found to drastically reduce nitrogen fixation, growth, and nodulation of subterranean clover/Rhizobium trifolium planted 120 days. A Swedish field study found residues of triclopyr persisting for one to two years, and in some cases in excess of two years (Triclopyr Fact Sheet, ref. #9).

Garlon (triclopyr plus secret ingredients) labels indicate that conifer seedlings should not be planted in soil sprayed with triclopyr for six months, which would indicate that the soil will remain toxic to conifers during that period.

This type of field experience is important to discuss. The importance is not only the half-life for the revealed ingredient as determined in a controlled experiment, but the reality of toxic compounds, including metabolites, degradation products, secret ingredients, and any alteration of degradation of the revealed ingredient by the presence of the secret ingredients. The presence of certain secret ingredients in the Omite-CR propargite formulation, for instance, significantly delayed the foliar degradation of propargite that occurs in other Omite formulations.(4)

Two major triclopyr metabolites in soil (trichloropyridinol and trichloromethoxy pyridine) have half-lives, according to Dow, of as much as 279 days and 300 days, respectively, in soil (Triclopyr Fact Sheet, ref. #10).

The DEIS does not discuss the issue of breakdown in soil of pesticides to contaminants that may be as or more toxic than the parent pesticide. The chlorines so ubiquitous in pesticides, for instance, do not simply "disappear." Likewise, the DEIS does not mention the fact that secret ingredients are also placed in the soil along with the known ingredients. These issues must be discussed.

c. "Note that most (90 percent or more) of the herbicide used will be intercepted by foliage, and thus will not reach the soil until it is mostly decomposed." (DEIS IV-21)

This type of statement is maddening. All 16 herbicides decompose readily in foliage? Ninety percent interception by all methods of application? When plantations are sprayed? When clearcuts are sprayed? What is the reference that will speak for all 16 of the herbicides you propose? What is the reference that comes up with 90% or more interception by foliage as a generalization meaningful for such a "conclusion" in the DEIS?

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d. "Once in the aquatic environment, herbicides are lost through volatilization, adsorption on stream sediments, adsorption [sic] by aquatic biota, degradation by chemical, biological, or photochemical means, or downstream movement (Newton and Norgren 1977)." (Emphasis added) (DEIS IV-46)

Lost? What kind of euphemism is that? This world is a closed system, folks. Without altering the content of the sentence, it could just as accurately read, "Once in the aquatic environment, herbicides can be distributed throughout the ecosystem by a variety of means. The herbicides may travel further downstream or volatilize into the air. They may be taken up by aquatic organisms, or be temporarily adsorbed onto stream sediments. They may degrade to other chemical compounds by chemical, biological, or photochemical means or combine with other chemical compounds present in the aquatic environment."

Have I altered the content? Does the second sentence imply different impacts? I believe NEPA would require you to state the sentence in the form of statements about impacts rather than in euphemisms.

## 2. Correct Table IV-10. Comparison of Herbicides.

a. What does "Persistence" refer to? Persistence in water? Soil? Sediments?

b. Amitrole: The DEIS states that amitrole's persistence is short to medium. Persistence can be long. One study found residues amounting to 36 percent of the applied amitrole after 18 months in a sandy loam soil. (5) Amitrole applied to a pond system at 1 ppm was found to persist for 201 days in the pond water (.08 ppm remaining) and sandy clay hydrosol (0.10 ppm remaining). Residues in the hydrosol reached their maximum (0.30 ppm) on day 139. (Amitrole fact sheet, reference #10). One longterm study was unable to detect any degradation of amitrole in distilled water, sewage, or river water. (Amitrole fact sheet, ref. #12). A study of well contamination in Ontario, Canada found that amitrole was one of the three most persistent contaminants in groundwater (the other two being dinoseb and picloram). (Amitrole fact sheet, ref. #13).

The DEIS states that amitrole is moderately mobile. The EPA indicates amitrole is mobile in sand and silty clay loam soils, and moderately mobile in silty loam, sandy loam, and clay loam. (Amitrole fact sheet, ref. #10).

c. Asulam: The DEIS indicates asulam persistence is short. One study indicates asulam does not degrade in soil that is dry (asulam fact sheet, ref. #8). Asulam does not decompose in water (asulam fact sheet, ref. 10). The table indicates no data on asulam's solubility in water. Its solubility is 5,000 ppm (asulam fact sheet, ref. 8). which means high solubility. Why is asulam listed as having only moderate mobility?

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d. Atrazine: The DEIS indicates atrazine has only moderate mobility in the soil. According to EPA's Ground Water Team leader in 1986, atrazine is probably the most common groundwater contaminant in the country.(6) It is true that atrazine does not have extraordinarily high solubility, but the real life reality is that atrazine has repeatedly reached groundwater.

e. Dalapon: The DEIS indicates dalapon has only moderate mobility in soil, although it is one of the highest priority herbicides for groundwater contamination, according to the EPA (Attachment C). Its mobility is listed as "very mobile" by the EPA (Attachment C).

According to the USDA Pesticide Background Statements, "Helling (1971) compared the mobility of 40 pesticides on plates of silty clay loam and found dalapon to be among the most mobile of the pesticides studies. This high mobility is confirmed in a number of studies reviewed by Foy (1975)."(9)

f. Triclopyr The DEIS indicates triblopyr persists only moderately. A Swedish field study found residues of triclopyr persisting one to two years, and in some cases in excess of two years at 10% or less. (Triclopyr fact sheet, ref. 9).

3. Indicate the ability of the Forest Service to monitor for each of the herbicides in water, soil, foliage, and animal tissue.

As stated by the EIS, monitoring assures "that the project is implemented as designed... Monitoring assures that mitigation measures are carried out, and may be used to evaluate whether further mitigation is needed... The information can be used to validate or refine techniques and activities... Most monitoring is done within the project area on target species, crop trees, and nontarget species of concern, such as rare or sensitive species... [D]ownstream monitoring is common where herbicides are used." (II-60)

For these and other reasons, monitoring for presence of herbicides is important.

Attachment D indicates that the EPA does not have an appropriate method for analyzing presence of glyphosate in water.

Attachment E indicates that the Oregon Department of Agriculture Laboratory is one of a "few laboratories in the United States that has these methods [i.e., of analyzing for the presence of glyphosate in water] available for our usage." Moreover, the analytical methods are regarded as proprietary by Monsanto Chemical Company..

Attachment F is a letter NCAP recently sent asking the Oregon Department of Agriculture (ODA) to indicate their ability to test for glyphosate and its primary metabolite, AMPA, in various environmental

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matrices. As the cost of testing for glyphosate has been reputed to be very high (\$3,000 a shot, according to one 1979 newspaper article(9)) NCAP has also asked the ODA to indicate the cost of each glyphosate analysis.

Is the Forest Service able to monitor for the presence of glyphosate in various environmental matrices (water, soil, foliage, animal tissue)?

What laboratory available to the Forest Service has been "granted access" to glyphosate analytical methods by its chemical manufacturer, Monsanto?

What is the cost to the Forest Service of testing for glyphosate in water?

Has the Forest Service ever monitored for glyphosate after it was sprayed by the Forest Service? When? Using what methods?

Which of the 16 herbicides is the Forest Service able to analyze for in water, soil, foliage, and animal tissue? Please indicate the ability of the Forest Service to provide the public with the methods it will use to monitor for presence of the herbicides.

It is important that no herbicide be used for which the Forest Service has no intention of monitoring.

4. Incorporate the material on soil and water persistence and mobility through soil into a profile on each herbicide proposed for use. The presentation of the information in Table IV-10 and the section on Soil Resources and Water is useless if it is not integrated with other information on the herbicide so that meaningful decisions can be made about the use or avoidance of specific herbicides.

For instance, simazine, an herbicide listed by the DEIS as having "moderate" mobility in soil has been found in groundwater in seven California counties and is on the California Department of Health Services' "40 Highest Priority Pesticides List" for concern.(7)

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- A. U.S. Environmental Protection Agency. August 13, 1984. Criteria for chemical selection. Memorandum from Stuart Cohen, Hazard Evaluation Division, to Irv Pomerantz, Criteria and Standards Division, Office of Pesticides and Toxic Substances.
- B. Northwest Coalition for Alternatives to Pesticides. Undated. Kd and Koc. (A paper describing two measures of the potential for a pesticide to adsorb to soil or leach through soil.)
- C. U.S. Environmental Protection Agency. August 28, 1984. List of potential ground-water contaminants. Memorandum from Stuart Cohen, Office of Pesticide Programs to Irv Pomerantz, Office of Drinking Water.



## QUALITATIVE ANALYSIS

### CHANGES NEEDED

1. Explain the significance and meaning of the data presented on mutagenic toxicity of the herbicides.

On pages H45-H83, a multitude of mutagenicity test results have been presented for the 13 proposed herbicides. Nowhere in the text are the meaning and significance of these results discussed.

At the very least, clear, readable discussions need to be offered of the following:

- a. The hazards posed by (a) point mutations, (b) DNA damage/repair, (c) chromosomal aberrations and cytogenetic damage, and (d) cell transformation.
- b. The general significance of microbial assays, Drosophila tests, mammalian cell cultures, in vivo host mediated assays, in vivo animal studies, in vivo/in vitro human studies and plant material assays.
- c. The concerns raised regarding each herbicide by its genetic toxicity testing (or lack of adequate testing). These concerns should be described in the profile of concern for each herbicide. DO NOT tell us that picloram, for instance, was found positive in four tests and negative in nine tests. That is meaningless.
- d. The meaning of +/- for a class of mutagenicity tests (Table IV-22, p. IV-104). The text indicates +/- means "equivocal, or inconsistently positive/negative." When an herbicide such as 2,4-D has both a + and - for DNA repair tests, does that mean results have been inconsistent for a single mechanism of DNA damage/repair, or for different mechanisms? As I understand it, a mutagen might cause a certain kind of damage by one mechanism and not by another. Therefore, the evidence might be both positive and negative for that class of damage, but not for a particular mechanism.

The following discussion of the genetic toxicity of 2,4-D was found in Ruth Shearer's narrative statement in the NCAP v. Block litigation of 1983. It should serve as a model for the type of presentation you need to do with the mutagenicity data presented on H45-H83:

"2,4-D has been shown to cause point mutations in animal cells, chromosome damage in human lymphocytes as well as bone marrow cells, DNA damage which mimics the effect of ionizing radiation, and stimulation of

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cell division in non-dividing muscle cells. The primary use of testing for mutagenesis or DNA damage at present is as a pre-screen for likely carcinogens. However, mutation is a most undesirable injury in its own right. Mutation in germ cells can result in loss of fertility, early death of the embryo or malformation and malfunction which may lead to death in the fetal or neonatal period, or hereditary diseases which limit physical or mental function.

The significance of mutation tests is not determined by numbers of positive or negative tests. Assays in several kinds of systems assess different kinds of mutagenicity. A mutagenic chemical usually acts by only one mechanism; 2,4-D has been positive in several types of mutation tests. Although bacterial assays have been negative [no longer true today], mammalian tests were positive, and mutagenicity is one of the genetic effects for which there is no threshold, so the positive results should be given serious attention."

This type of discussion is essential. It is warranted by the data, it is understandable by laypeople, and it indicates the relevance of the data to human health.

2. Explain the basis for deciding when you have "moderate" or "high" confidence that NO adverse effects will occur to workers or the public.

Example #1: Dalapon

Take dalapon, for example. The July, 1986 California Department of Food and Agriculture toxicology review of dalapon indicates that dalapon has NO adequate toxicological studies on file.(1) The July 1987 U.S. EPA reregistration document for dalapon indicates that "there are only four toxicological studies on dalapon available to the Agency. Of these, only one, an oncogenicity study [noting a trend for benign lung tumors], is acceptable; however, additional data regarding this study are required."(2).

Moreover, in the teratology study, which, according to the EPA is lacking in "individual animal information, maternal, fetal and litter data," fetuses had reduced weight, retarded ossification of sternebrae, hyoids, and sacral arches at all doses."(2) The CDFA notes "skeletal effects at all doses" and calls the test "incomplete, unacceptable."(1)

How does the EIS handle the teratogenicity of dalapon??

1. Appendix H notes under "qualitative ranking on adequate testing" that the study is "incomplete and unacceptable" (and that another study is of unknown material and unknown acceptability). (H-104)

2. Appendix H indicates "Skeletal effects at all doses(?)". (-104)

Where does the "(?)" come from?

3. Appendix H indicates a NOEL of 500 mg/kg/day, citing an unidentified (i.e., no date given) EPA "tox one-liner", not the EPA reregistration standard which notes fetal toxicity at all doses. (H-104).

How do you have a "No Observable Effect Level" of 500 mg/kg/day when effects were observed at all doses, including 500 mg/kg/day?

4. The EIS text indicates that the "quality of information" for dalapon on developmental toxicity (i.e., teratogenicity) is "marginal."

Why is it "marginal" rather than "inadequate" when the only qualitative judgment noted in Appendix H is "incomplete" and "unacceptable?" (IV-105)

5. The EIS text indicates that the NOEL for developmental toxicity of dalapon is 500 mg/kg/day and that there was "evidence for adverse developmental effects, primarily minor abnormalities observed." (IV-102)

Where does the 500 mg/kg/day NOEL come from? What abnormalities are considered "primarily minor" vs. "major malformations?"

6. The EIS text indicates there is a "high" level of confidence that "No adverse [developmental] effects will occur based on public exposure from routine-realistic aerial spraying (combined exposures for a nearby resident)." (IV-105)

How do you get "high" confidence that no adverse developmental effects will occur to the public when you have one unacceptable test that indicates developmental effects at all doses?

7. The EIS text indicates there is a "moderate" level of confidence that "No adverse [developmental] effects" will occur when workers are exposed to dalapon through backpack spraying. (IV-107)

How do you get "moderate" confidence that no adverse developmental effects will occur to the children of workers exposed to dalapon when you have one unacceptable test that indicates developmental effects at all doses?

8. I hesitate to even mention Appendix D, the bulk of the EIS appendices, because it is so riddled with inaccuracies, unpublished studies, false statements, and fails to judge the adequacy of test data in any way. But, while we're on the subject of dalapon's teratogenicity, Appendix D cites dalapon's teratogenicity NOEL as being "greater than 300 mg/kg/day" and gives as a reference the 1984 USDA Pesticide Background Statements. In that document, one can see that Labat-Anderson is referring to a 28-year old study in Agric. Food Chem. in which "no adverse effects on fertility, gestation, viability, or normal growth and maturation were observed."

Exactly what use was made or not made of Appendix D in making EIS text statements? Were numbers used from Labat-Anderson's review

without determining whether the studies were adequate or not? Were conclusions used?

In addition to the discussion of dalapon teratogenicity, the EIS text indicates that diuron and fosamine are the only two herbicides that "did not have sufficient information to evaluate." (IV-116)

How do you figure that dalapon has enough information to evaluate risk when the CDFA indicates that not one single toxicological test is adequate (Inadequate: chronic rat, chronic dog, oncogenicity rat, oncogenicity mouse, reproductive rat, reproductive dog, teratogenicity rat, teratogenicity rabbit, gene mutation, chromosome aberration, and DNA damage)(1) and the EPA indicates the only test that is acceptable is the mouse oncogenicity test and even it needs additional data (2)?

I do not go through this exercise to have you fix up the details of dalapon, the registration of which is going to be voluntarily canceled anyway in six months because the manufacturer doesn't want to undertake doing the testing that was required by Congress 16 years ago for registration of pesticides (according to recent personal communication between Norma Grier and the EPA).

Instead, this exercise points up some major issues of concern that need to be dealt with:

1. The authors of the various components of Appendix H and the human health section of the EIS text need to identify themselves. Clearly, different sections in Appendix H have been prepared by different people. Authors are needed.
2. The authors need to indicate how they are making decisions regarding the acceptability of the tests in the text.
3. The authors need to indicate how they are making decisions regarding "high", "moderate" and "low" confidence that "no effects" will occur to the public and workers for various types of effects. Who made the decisions and on what basis?
4. When a study has been judged "unacceptable" by CDFA based on EPA test guidelines and judged "acceptable" by EPA using the same guidelines, what have the authors done to determine the "quality of information" for the herbicides in Tables IV19-IV-23 on pages IV101-IV103? Who made these decisions? There must be accountability for these conclusions.
5. Exactly what reliance is placed on the lengthy Appendix D, the Labat-Anderson "quantitative" risk assessment? What is the basis for placing whatever reliance is placed on Appendix D?

Example #2: Reproductive Effects

Although reproductive effects testing is clearly inadequate for most of the herbicides, the EIS claims "high" confidence that no reproductive effects will occur to residents living next to aerial operations involving the following herbicides:

Asulam is listed as having one reproductive test whose qualitative ranking on adequacy is "Incomplete" and "Inadequate" according to the CDFA ("Not enough animals, justification of dose level; non-specific chemical analysis of test compound; not enough data on necropsy/histopathology, inappropriate or miscalculated statistical analysis"), and "Core grade - minimal" by the EPA.(H-93).

Bromacil is listed as having one study judged "Unacceptable" by CDFA ("inadequate number of animals, no analysis of diets, inadequate histopathology (not done on parental animals), formulated product rather than technical, one dose only with no evidence of [Maximum Tolerated Dose]") and "minimum" by EPA.

Dicamba is listed as having two studies judged unacceptable by CDFA, although the CDFA review sent NCAP by the Forest Service lists only one study and it was judged unacceptable ("Unacceptable on age, animal numbers, dose selection (no sign of toxicity), short dosing of three weeks before first mating, inadequate pathol., others.") One of the studies has an EPA core grade of "minimum"; the EPA reregistration standard indicates that "review of the study was limited by the failure to report some of the data that was collected; observations on parental animals during the mating and on pups during lactation, pup body weight data, the number of viable and stillborn pups by sex at birth, and the results of the pathologic examinations were not presented.")

The EIS authors indicate that they have "high" confidence no reproductive effects will occur to workers exposed to dicamba, as well.

Glyphosate is listed as having one invalid IBT study and one study the EPA initially judged as supplementary but subsequently upgraded to minimum. The CDFA judges the study unacceptable, noting that the study did not "justify the dosage range selected...with respect to an MTD. It is necessary for the registrant to either repeat the study, to justify the dosages employed, or to perform an appropriate ancillary study sufficient to establish a parental and/or reproductive effects NOEL."

Picloram is listed as having one study judged by the CDFA to be "Unacceptable, non-upgradeable" ("No record of total consumption", "insufficient number of animals, only 4 weeks of exposure prior to first mating, mating in groups, inadequate number necropsied, data not clearly presented.") No judgment is given by the EPA.

A second test is listed, with no indication of its adequacy by the authors, CDFA, or EPA.



The EIS authors indicate they have high confidence workers as well as the public will experience no adverse reproductive effects from exposure to picloram.

Triclopyr is listed as having one study judged unacceptable by CDFA ("no analysis of diet, inadequate histopathology, high dose not high enough, test article not described...all doses too low") and as minimum by EPA.

The reason for going through this exercise is that NCAP finds unacceptable a conclusion that some unidentified authors have "high confidence" that no adverse reproductive (or other) effects will occur to humans when one test is available that is not even considered acceptable by toxicologists employing the EPA standards for what is acceptable.

This "high confidence" is also, of course, based on not knowing what chemicals are mixed with this inadequately tested material for the final formulation. Neither the full formulation nor the other chemicals are likely to have ever been tested for reproductive effects.

The issue of reproductive effects is a particularly sensitive one because, as the EIS states, reproductive effects can occur from single exposures because the periods of susceptibility may be measured in days. (IV-92)

The EIS authors need to describe how they arrive at high confidence that no health effects will occur when no adequate test is available for those health effects. It would have been far better to prepare a table of concerns rather than a table of "no concerns." In that case, the basis for concern for each herbicide could be listed. In some cases, it would be a reproductive effects test that indicated a relatively low NOEL; in another it would be that no adequate reproductive test was available. Such a table would be more defensible than one indicating "high confidence" that "no adverse effects" will occur.

Your "high confidence" is not shared by that portion of the public that knows toxicologists have judged a single test inadequate, requiring chemical manufacturers to either redo the inadequate study or else remove the pesticide from sale.

### 3. The qualitative human health risk assessment needs to include known incidents surrounding the use of the herbicides.

The authors of Appendix H appeared to find their only duty to be to collate the comments of CDFA, EPA, and other reviewers as to the quality of laboratory experimental evidence.

There is a wealth of qualitative evidence to be had by looking at California Department of Health incident reports, EPA incident reports, Ruth Shearer's literature reviews, Forest Service worker complaints(?), medical literature, court suits. As far as I can tell, none of this was



studied. There are a number of picloram (Tordon) court suits around the country; the recent 2,4-D court suit (see NCAP chapter on 2,4-D); incidents involving glyphosate in the literature and in California, Wisconsin, Oregon; incidents involving 2,4-D around the country, particularly with children, etc. Poison control centers in Philadelphia and California have indicated that a fair proportion of pesticide poisoning incidents appear to be due to the solvents present in pesticide formulations rather than the revealed ingredient.

NCAP will gladly share our files on such incidents with the EIS team; these are the type of incidents that rightfully raise concerns among the public.

4. The charts in Appendix H need to be made much more readable and accountable.

A. The charts for "General toxicity and selected organ effects of chronic and subchronic exposures to herbicides" (H12-H29) do not indicate the source of the "Notes" on the adequacy of the tests. Some tests have no notes on adequacy. Did the author of the charts determine adequacy? Were those without notes by some reviewers just accepted? What does "supplementary" mean? "Minimum?" "in house value?" (H20)

B. The charts for oncogenicity (H84-H89) do not indicate who made the quality judgments or how. For instance, a 1956 study is judged marginal and yet neither EPA nor CDFA include this in their listing. Who judged it marginal rather than inadequate?

The oncogenicity charts have no references list for the studies listed.

C. The charts on reproductive and developmental toxicity need an acronyms list (LEL, LOAEL, CG, ND, HDT).

Each study needs to be identified. For instance "ansulam" (meaning asulam) has five teratology studies listed and the only reference is the BLM DEIS on vegetation management. That is an inadequate reference for a study.

D. The chart on "data for analysis of immunotoxicity and neurotoxicity" (H117-H122) wrongly describes absence of data. For instance for amitrole neurotoxicity, the chart states "No reported evidence of neurotoxicity in subchronic studies." If no subchronic studies have looked at neurotoxicity, this is a misleading statement. Rather, the chart should simply say, "No data." Simple, accurate.

The same holds for immunotoxicity. The statement is made for amitrole that there is "No reported evidence of immunotoxicity in acute and subchronic studies." Since acute and subchronic studies don't generally examine whether immunotoxicity is present nor discuss it, this is a misleading statement. The chart should simply say, "No data."

5. A number of clarifications or changes need to be made in the EIS text discussion of human health (IV85-IV128).

A. What is the source for the "application rates for realistic and worst case assessments" of Table IV-16 found on IV-89 and Appendix D-4?

B. Is Table IV-17 (on IV-90) estimated exposures as opposed to doses? Where is it found in Appendix D?

C. The statement that the public is not likely to be exposed "more than once or twice" to the herbicides (IV-92) ignores the fact that the public is exposed to pesticides every day - in food, at work, school, neighborhood, often in water, etc.

D. What is the source for estimating a backpack applicator will work an average of 15 days per year for the Forest Service? (IV-92) What is the range?

E. Ask a rural resident surrounded by timber land if they think they are exposed to an herbicide once per year. (IV-92). Cumulative impacts must be considered.

F. There is a reference to "acceptable" risk on IV-93. Who decides for a person that a risk is acceptable?

G. On IV-94 a very technical discussion of Ames' HERPS and this EIS HERP is given. Then, after all that work, only one alternative out of seven considers the various herbicides' comparative hazards.

H. On IV-95, the statement is made that 2,4-D does not contain TCDD. This cannot be said (see NCAP chapter on 2,4-D).

I. A new epidemiological study needs to be added to the epidemiological discussion of lung cancer and non-Hodgkin's lymphoma: Breslin, Patricia, Han K Kang, Yvonne Lee, Vicki Burt, and Barclay M Shepard. 1987. Proportionate mortality study of Army and Marine Corps veterans of the Vietnam War. Washington DC: OOffice of Environmental Epidemiology, Veterans Administration. The abstract states, "The Marine Corps Vietnam veterans appeared to have an increased mortality from lung cancer and non-Hodgkin's lymphoma." The Marine Corps soldiers were largely ground troops fighting in the areas of Vietnam sprayed most heavily with the phenoxy herbicides 2,4-D and 2,4,5-T..

J. It is inappropriate to "estimate" a NOEL for amitrole reproductive effects in Table IV-20 when in fact no NOEL was observed. The chart needs to simply say "No NOEL observed." There is absolutely no basis for dividing the LOEL by 10. (IV-102)

K. It is important to discuss in the text the relevance of the almost totally empty data base for neurotoxicity and immune toxicity for either the revealed ingredients (IV-103), secret ingredients, or full

formulations. Explain to the readers what neurotoxic effects could be present, and how immune suppression affects the chances of becoming ill from other causes.

L. Why is there only "moderate" evidence for neurotoxicity of 2,4-D? (IV-103) It has been repeatedly documented in published medical literature that exposure to 2,4-D formulations have resulted in neurotoxic effects. If you are claiming somehow that it hasn't been proved that the 2,4-D in the formulations is what has caused the neurotoxicity, then at least make clear that the neurotoxicity of the formulations has been repeatedly reported.

It really doesn't matter a whole lot to those with peripheral neuropathy whether they got it from 2,4-D itself or secret ingredients in the formulation.

M. Tables IV24-IV25 need to correct the terms "Quality of Data" to "Level of Certainty" underneath the tables.

N. The Summary [of potential health impacts] by Herbicide (IV111-IV115) needs to be replaced by Herbicide Profiles of Concern (see NCAP chapter, "Profile of Herbicide Concerns").

I have not gone through the Summary sentence by sentence, but notice that amitrole is described as having "little potential for causing developmental toxicity." (IV-111). On H-100, an acceptable developmental toxicity study for amitrole determined a low NOEL of 4 mg/kg/day for developmental effects and the qualitative ranking states, "Possible adverse effect due to frequency and severity of defects." Appendix H and the text summary are in conflict.

By reading the summary of dalapon on IV-113, you certainly wouldn't suspect that the CDFA indicates every single toxicological test on dalapon is inadequate and that the EPA says only one test, one oncogenicity test, is acceptable.

Read the following sentences regarding diuron to yourself and then think whether you have learned anything about its potential to cause harm: "A carcinogenic effect has not been observed in inadequate studies, and it has low reproductive toxicity, based upon inadequate data. Diuron has a weak potential for immunotoxicity, based upon inadequate data." (IV-113).

O. Why are bruises considered "major injuries?" (IV-125).

P. How are the totals derived in Table IV-29? I can't figure that out.

REFERENCES

1. California Department of Food and Agriculture Medical Toxicology Branch. July 29, 1986. Summary of toxicology data: Dalapon. Sacramento, CA.
2. U.S. Environmental Protection Agency. July 1987. Guidance for the reregistration oof pesticide products containing dalapon as the active ingredient.

METABOLITES, CONTAMINANTS,  
CHILDREN, SENSITIVE PEOPLE,  
CUMULATIVE IMPACTS AND SYNERGISM

1. Discuss the information on, lack of information on, and relevance of  
contaminants and metabolites of the herbicides proposed for use.

The EIS text discussion of "impurities" (i.e., contaminants) in herbicides consists of one paragraph on IV117-IV118. This is entirely inadequate.

The type of discussion of contaminants of an herbicide that needs to be prepared is exemplified by the following passage regarding contaminants in 2,4,-D found in Ruth Shearer's 1983 Narrative Statement in NCAP v. Block:

"[I]n 1980, Canadian scientists reported that 12 out of 26 commercial samples of 2,4-D analyzed for dioxin content were positive at 80 to 8000 ppb (parts per billion) for three types of dioxin: 2,7-dichlorodibenzo-p-dioxin (DCDD), 1,3,7-trichlorodibenzo-p-dioxin, and 1,3,6,8-tetrachlorodibenzo-p-dioxin (1,3,6,8-TCDD). After receiving this information, the EPA still put no restrictions on 2,4-D, but did begin a sampling program to determine whether dioxin contaminants are present in U.S. products. During the first phase of this program, 3 out of 30 samples were found to contain DCDD in concentrations below 100 ppb, and no TCDD was detected. However, when the three positive samples were sent to another laboratory for higher resolution confirmation, DCDD was detected at concentrations up to 184 ppb, and 2 of the 3 samples showed 1,3,6,8-TCDD at 11 ppb. The other 27 samples were not assayed by the more sensitive procedure and none of the 30 samples was tested for the trichloro-dioxin found in the Canadian analyses. In addition, the higher resolution laboratory reported that extremely high concentrations of unidentified chlorinated contaminants were present in the U.S. samples [cite and attachment].

"Few data are available on the toxic effects of the dioxins in 2,4-D. A Dow Chemical Company study reported that DCDD was minimally toxic [cite and attachment] but Khera and Ruddick of the Health Protection Branch, Department of Health and Welfare, Canada, found significant teratological injury to the heart muscle in fetuses of rats given 2.0 mg/kg/day of DCDD (suppression of growth of cardiac tissue was indicated). [cite and attachment].

"A bioassay of 2,7-DCDD for possible carcinogenicity in rats and mice was completed in 1979 under sponsorship of the National Cancer Institute. Rats developed toxic liver lesions, but no tumors in excess of controls. In male mice, liver tumors were dose-related; there were also significant increases in incidence of leukemias, lymphomas, hemangiosarcomas, and hemangiomas in the low-dose male mice, but not in the high-dose group. [cite and attachment]



"Although the dioxins found in 2,4-D are not nearly as toxic as the 2,3,7,8-TCDD present in 2,4,5-T and Silvex, they would also be stored in fatty tissue, and would be expected to be much more resistant to degradation than 2,4-D. Persistence clearly adds to health hazard by prolonging exposure."

(Note: As documented in NCAP's comment chapter on 2,4-D, 2,3,7,8-TCDD may very well be in 2,4-D, due either to intentional addition of TCDD-contaminated wastes to the 2,4-D production stream or as an unintentional byproduct of production).

I have quoted the passage by Ruth Shearer in its entirety because the presence of contaminants may cause effects different than, cumulative with, or synergistic with the revealed ingredient.

Picloram contains hexachlorobenzene as a contaminant.(1) As noted in a September 1985 EPA project plan for a bioaccumulation study, "The manufacturers of four pesticides (chlorothalanyl, dacthal, pentachloronitrobenzene and picloram), have acknowledged the presence of HCB as an impurity in the product. Depending on the pesticide manufactured, the companies have agreed to decrease the amount of HCB to between 200 and 5,000 ppm."(1) (Emphasis added.)

Hexachlorobenzene is a carcinogen,(2) was found to be present in 98% of human fat samples in an EPA human tissue monitoring study(1), is known to contain polychlorinated dibenzodioxins and dibenzofurans(3), and caused an epidemic of porphyria cutanea tarda in Turkey in the 1950s when treated wheat which was intended for planting was used to make bread.(4) Hexachlorobenzene bioconcentrates in fish tissue, adsorbs to sediments, and volatilizes to the atmosphere.(1) Available evidence indicates that HCB is very resistant to chemical and biochemical degradation.(1)

Amitrole contains ammonium thiocyanate, which is more acutely toxic than amitrole, is, like amitrole, an antithyroid chemical, and inhibits the breakdown of amitrole (ref. #7, Amitrole Fact Sheet).

Glyphosate may include N-nitrosoglyphosate (NNG) as a trace contaminant, or the compound may be formed in the environment when combined with nitrite (present, e.g., in human saliva or fertilizer (ref. #8 in Roundup Fact Sheet). The majority of N-nitroso compounds are carcinogenic (ref. #9 in Roundup Fact Sheet). A forest study found NNG in a forest foliage sample, litter sample, and deer mice viscera after aerial application of glyphosate (ref. #10 in Roundup Fact Sheet).

Contaminants such as these require a discussion in the EIS: they are present in the herbicide formulations proposed for spray. The contaminants associated with the secret ingredients in the formulations are entirely unknown.

A related problem is the degradation of parent compounds to metabolites that may persist for extended periods of time or themselves exhibit toxicity. A principal metabolite of glyphosate, for example, is aminomethylphosphonic acid (AMPA).(5) As much as 28% of glyphosate

residues in plants, for instance, may be AMPA.(5) As the EPA notes regarding AMPA, "Since the extent of glyphosate metabolism was not adequately addressed in the rat metabolism study [for glyphosate], the possibility exists that the AMPA metabolite could pose a hazard to humans that was not evaluated by testing the parent compound glyphosate... No studies are available by which to assess potential mutagenic, reproductive, oncogenic, or chronic effects of AMPA."(5)

Two major triclopyr metabolites in soil (trichloropyridinol and trichloromethoxy pyridine) have half-lives, according to Dow Chemical Company, of as much as 279 days and 300 days, respectively, in soil (ref. #10 in Triclopyr Fact Sheet). This means that nearly a year after triclopyr has broken down into these metabolites, approximately half of the metabolites would remain in the soil. The toxicity of these metabolites has not been studied.

While very few of the herbicides proposed for use in the EIS have been examined for the identification, environmental fate, or toxicity of their metabolites, the EIS must acknowledge (1) the fact that this is missing information, and (2) the relevance of this missing information, namely, that the metabolites could potentially be more persistent, more mobile, and more toxic than the parent compounds from which they are derived. In particular, the fact that many of the herbicides are chlorinated phenols should lead to a discussion of the fact that phenols and chlorine do not simply "go away" when the parent compounds degrade.

2. The EIS must discuss the particular concerns of health effects from toxic chemicals faced by children, the elderly, and other sensitive people.

Attachment A, "Children and Toxics," is written by Beverly Paigen who co-directed studies on the health of children living near the hazardous waste site, Love Canal. In this article, Paigen indicates a number of reasons why children are more sensitive than adults to toxic chemicals. Many toxins, particularly those that cause cancer, damage rapidly dividing cells. Children's cells are dividing more rapidly than those of adults. Some organ systems (e.g., the reproductive system) of children are immature, rendering the children more susceptible to toxic effects. Doses of neurotoxins that might not affect an adult may exert effects on children.

The EIS needs to discuss the types of special effects that herbicides may exert on children. It is not simply a matter of compensating for differences in body weight or body surface; there are qualitative differences.

The particular vulnerabilities of elderly people likewise need to be discussed.

The fact that certain people can be particularly sensitive to certain classes of compounds, for instance petroleum-based compounds, needs to be discussed. For instance, it is well-known that following

repeated exposure to certain compounds, some people will react to low doses of these compounds.

The world is not composed entirely of 30-year-old, healthy, 70 kg adults despite the implication of tidy "risk analyses"!

3. The EIS must discuss cumulative and synergistic effects of the revealed herbicidal ingredients with the secret ingredients and the other toxic chemicals to which people are exposed.

The Forest Service is not responsible for the plethora of toxic chemicals to which people and other animals are being currently exposed via air, water, food, and soil. By the same token, the Forest Service cannot discuss the impacts of their program as if people and the environment are being exposed only to the toxins sprayed by the Forest Service.

There is a legacy of 2,3,7,8-TCDD (and other dioxins?) in the soil and sediments of the Oregon Coast Range, for instance, left from years of spraying with 2,4,5,-T and Silvex. Pulp and paper mills within Region 6 are releasing 2,3,7,8-TCDD and other dioxins into the environment if they use chlorine in their pulping and bleaching processes. (6,7)

As 2,3,7,8-TCDD is an immune suppressant, (8) exposure to TCDD and herbicides used by the Forest Service could have cumulative effects.

Workers who spray herbicides for the Forest Service are exposed to other pesticides, particularly if they are contract workers who spray pesticides for other employers. Those workers are probably carrying body burdens of pesticides.

Residents living near Forest Service spray units may live, work, or travel near private timber spray units, may be exposed to pesticides at their workplace, in their schools, and through their food.

While there is no way to precisely quantify the exposure of these people to all the pesticides they encounter, to ignore these exposures entirely in the EIS is to treat the exposures as if they are zero, thereby violating NEPA regulations.

The EIS needs to acknowledge the exposure of people to multiple pesticides and other toxics and the inescapable conclusion that the various toxic chemicals may have cumulative and/or synergistic effects.

The fact that exposure to a pesticide formulation is ipso facto exposure to multiple, unidentified chemicals is a major source of uncertainty and clearly a potential source of synergism and cumulative impacts.

Solvents present in herbicide formulations, for instance, might dry out the skin, facilitating entrance of revealed ingredients into the

body. If one herbicide ingredient were to place stress on the kidney, another might not be as easily detoxified by the kidney.

The reason this issue of cumulative effects is of particular importance is that it is one of the major sources of citizen concern regarding pesticides. That is, if the Forest Service were the only source of toxics in people's lives, there would not be the attention or concern to the Forest Service vegetation management program (although nearby residents or those who wish to see forestry management done on an ecologically sound basis would still be concerned). In fact, however, numerous citizens are rightfully taking action to reduce the multiple sources of toxins in their lives, and the Forest Service is one more source. If the Forest Service helps take responsibility for the incredible dependence on toxics in our culture, then it is more likely that other toxics users (the BLM, private timber users, pulp and paper mills, sawmills, etc.) will also take a more critical look at their use of toxics.

#### REFERENCES

1. U.S. Environmental Protection Agency. September 1985. Work/quality assurance project plan for the bioaccumulation study. Washington, DC: Office of Water Regulations and Standards, EPA.
2. Cabral, JRP, P Shubik, T Mollner, and F Raitano. 1977. Carcinogenic activity of hexachlorobenzene in hamsters. Nature 269:510-511.
3. U.S. Environmental Protection Agency. September 1985. Work/quality assurance project plan for the bioaccumulation study. Appendix B. Washington, DC: Office of Water Regulations and Standards, EPA.
4. Cam, C, and G Nigogosyan. 1963. Acquired toxic porphyria cutanea tarda due to hexachlorobenzene. JAMA 183(2):88-91.
5. U.S. Environmental Protection Agency. 1986. Guidance for the reregistration of pesticide products containing glyphosate as the active ingredient. Washington, DC: Office of Pesticide Programs, EPA.
6. U.S. Environmental Protection Agency. 1987. National dioxin study. EPA 530-SW-87-025. Washington, DC: Office of Solid Waste and Emergency Response, EPA.
7. Van Strum, Carol, and Paul Merrell. 1987. No margin of safety: A preliminary report on dioxin pollution and the need for emergency action in the pulp and paper industry. Greenpeace USA, Inc.

8. Kimbrough, R., et al. 1984. Health implications of 2,3,7,8-Tetrachlorodibenzodioxin (TCDD) contamination of residential soil. J. of Tox. & Env. Health 14:47-61. Cited in Van Strum and Merrell, ref. #7.

ATTACHMENTS

A. Paigen, Beverly. 1986. Children and toxic chemicals. J. of Pesticide Reform 6(2):2-5.

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## SLASHBURNING

### CHANGES NEEDED

1. The incongruity in estimations of number of acres that will be treated with prescribed fire must be explained.

Figure II-10 (pages II-86 and 87) reveals the number of acres that will be treated annually with prescribed fire. Table IV-11 (page IV-29) and Table IV-12 (page IV-37) also indicate the annual acreage, but the figures are not the same.

For example, in Figure II-10, the annual acreage for prescribed fire under Alternative A is 217,800. The tables in Chapter IV indicate the annual acreage would be about 22,000. Annual prescribed fire acreage under Alternative D in Figure II-10 is 125,000, whereas the tables in Chapter IV show about 14,000.

These discrepancies need to be explained.

2. Risk considerations from burning herbicide treated slash must be acknowledged in prescribed burning plans.

NCAP is recommending that the preferred alternative in the Final EIS exclude burning herbicide treated slash (see comments on superimposing Alternative E onto Alternative D). However, if such a practice is considered by the Forest Service, careful consideration of the risks must certainly be included in the planning.

The points to consider in the plans for prescribed burns are outlined in Chapter II, pages 71-72. None of the points include the need to identify whether or not the unit has been treated with herbicides. Nor does the planning require managers to consider the risks of burning herbicide-treated slash or to assess or monitor those effects. The plan for prescribed burns must include these points.

3. Claims of benefits from leaving an unburned area in riparian zones must be documented.

The text makes an undocumented claim that leaving an unburned area in riparian zones will provide a filter that reduces sedimentation of water (II-73). This claim needs to be documented.

The claim that the unburned area will provide a filter is interesting in light of a 1983 study by Michael Mix and Randy Schaffer at Oregon State University that showed increased levels of polynuclear aromatic hydrocarbons<sub>1</sub> (PNAH) in the mussels of Yaquina Bay during the rainy season. In the same year, Dr.

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Timothy Sullivan speculated that "a significant potential source of PNAH within these watersheds, and throughout western Oregon, is slash burning, the burning of residual materials that remain after logging operations."<sup>2</sup>

Explain how PNAHs increase in mussels downstream from slashburns during the rainy season and either document what effect the filter zone will have on this problem or eliminate the claim.

4. Avoid claiming that health effects from prescribed burns on forest sites cannot be measured if no one has attempted to measure them.

Potential health effects from fire are discussed in Chapter IV, pages 39-41. The text cites a 1978 study by Geomet claiming that "[t]he concentrate of toxic compounds downwind of the fire is probably too low to cause measurable health effects." (IV-41) The text also indicates the substantial risks and uncertainty surrounding these practices (IV-120 to 124) and states that health effects from slashburning have not been studied (IV-123). The EIS cannot have it both ways. In the face of the uncertainty and missing information acknowledged in the text, the statement made in the Geomet study should be deleted.

Picking and choosing statements that minimize concerns does not constitute evaluation of the potential effects that may be caused by Forest Service programs.

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1. Mix, M.C., and R. Schaffer. 1983. Concentrations of unsubstituted polynuclear aromatic hydrocarbons in bay mussels (*Mytilis edulis*) from Oregon, USA. Marine Environmental Research 9:193-209.
2. Sullivan, T.J. 1983. Deposition and persistence of polynuclear aromatic hydrocarbons after slash burning clear-cut sites in Oregon. PhD. Thesis. Corvallis, OR: Oregon State University.

CHANGING THE TITLE OF THE EIS TO  
A PROGRAM FOR MANAGING UNWANTED VEGETATION

CHANGES NEEDED

The title should reflect the full decisionmaking process described in the EIS, not just encourage preconceptions that lead a manager to kill specific plants.

The current title, "Managing Competing and Unwanted Vegetation", makes assumptions and displays biases that are not warranted in this EIS. All three preferred alternatives are supposed to address diversity, long-term productivity, and ecosystem functions on a site-specific basis. Management necessarily includes consideration of vegetation associations on forest sites. All the alternatives give direction as to how a manager would regard associated vegetation. The title should display that larger imperative to consider the complex role of vegetation on forest sites

Associated vegetation can at once have adverse and beneficial impacts. It may compete for water, but also enhance water retention on the site. It may reduce soil erosion, provide mycorrhizal sites, provide shade, enhance organic content in the soil, etc. It is simply a dangerous simplification to call vegetation "unwanted and competing."

Some people have argued that the words "competing" and "unwanted" needed to be in the title in order not to confuse the general public with the forest plans that are also available for public comment. The title, A Program for Managing Associated Vegetation, does not sound like a forest plan. It does sound like the Forest Service has a sense of the complexity with which it is working.

WHY THIS IS IMPORTANT

Without changing the title, managers and the public may continue to maintain attitudes that all vegetation other than the crop tree should be dead vegetation. The decision that vegetation is unwanted or competing should be made in the last pages of the EIS, not before opening the book.

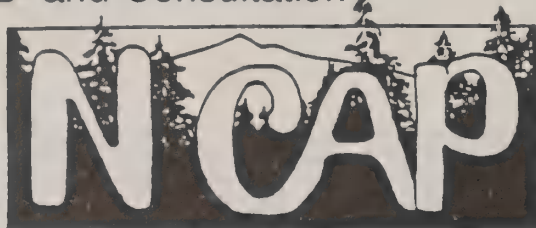


NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

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PESTICIDE FACT SHEETS

1. Amitrole
2. Asulam
3. Atrazine
4. Picloram
5. Roundup (glyphosate)
6. TCDD
7. Triclopyr
8. 2,4-D
9. Pesticide registration
10. Pesticides in soil



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Amitrole

by Mary H. O'Brien

Amitrole, a contact herbicide structurally related to triazines, is currently used primarily on roadside rights-of-way to kill broadleaved perennials, annuals, and grasses. For this use, it is frequently combined with longer-acting herbicides such as simazine, atrazine, diuron, or 2,4-D. Produced in other countries, approximately 500,000 to 800,000 pounds of amitrole are imported annually for use in the U.S.<sup>1</sup>

Public agencies (local, state, and federal) apply half of all amitrole used in the U.S., and western states are the recipients of 40% of the sprayed amitrole.<sup>1</sup> The Environmental Protection Agency (EPA) indicates that California alone may account for as much as 50% of the annual use.<sup>1</sup>

First registered in 1954,<sup>2</sup> amitrole is absorbed by foliage and roots and translocated throughout the plant. Amitrole inhibits chlorophyll formation, and protein and amino acid metabolism.<sup>2</sup> It accumulates at sites of new growth, inhibiting bud growth.

As problems with amitrole have surfaced, a number of its uses have been withdrawn from registration, including uses on food crops<sup>2</sup> (because of health effects),<sup>1,3</sup> and on forestry sites (because amitrole damages conifers).<sup>1,3</sup> Livestock<sup>3</sup> are not allowed in treated areas during the season of use.

Amitrole's major toxicological problems relate to its potency as an anti-thyroid agent, rather than acute toxicity. Fed amitrole at doses of 2.0 parts per million (ppm) for one week, amitrole inhibits thyroid iodine uptake in rats. When the thyroid is inhibited in its functioning, the pituitary gland secretes a hormone to stimulate the thyroid. If low dose exposure to amitrole continues, the thyroid enlarges (a goiter) and eventually changes in cell structure occur, resulting in thyroid tumors as well as pituitary gland tumors.<sup>1</sup> Higher levels of exposure to amitrole cause liver tumors in rats and mice.<sup>1</sup> Based on this evidence, the Environmental Protection Agency classifies amitrole as a "probable human carcinogen."<sup>1</sup>

Human studies relating to amitrole have been difficult to interpret because of the workers' exposure to multiple herbicides. In one study, for instance, railway workers exposed



Amitrole

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to amitrole and phenoxy acid herbicides experienced increased cancer rates.<sup>4,5</sup> In another study, agricultural sprayers exposed to a number of herbicides, including amitrole, 2,4-D, and atrazine, experienced greatly increased rates (up to 25 times) of chromosome gaps and breaks during the middle of the spray season.<sup>6</sup> Apparently no studies have been conducted on thyroid functioning in humans exposed to amitrole.

Ammonium thiocyanate is an ingredient added to amitrole in commercial formulations such as Amitrol-T and Cytrol.<sup>7</sup> More acutely toxic than amitrole, ammonium thiocyanate is also an antithyroid chemical, and inhibits the breakdown of amitrole.<sup>7</sup>

As in the case of humans, amitrole does not appear highly toxic to a variety of nonhuman animals, although 3 ppm amitrole in water is lethal to the water flea, Daphnia magna. Field applications of amitrole (1 lb - 8 lb/acre) have depressed microorganism populations and nitrification in the soil.<sup>9</sup>

Amitrole can persist in plants, water, and soil. One study found amitrole persisting in tomato plants as long as 3.5 months after treatment,<sup>11</sup> and another longterm study was unable to detect any degradation of amitrole in distilled water, sewage, or river water.<sup>12</sup> Amitrole applied to a pond system at 1 ppm was found to persist for 201 days in the pond water (.08 ppm remaining) and sandy clay hydrosol (0.10 ppm remaining). The half-life of amitrole in the pond water was approximately 39 days, while residues in the hydrosol beneath reached their maximum (0.30 ppm) on day 139.<sup>10</sup>

Amitrole is mobile in sand and silty clay loam soils, and moderately mobile in silty loam, sandy loam, and clay loam soils.<sup>10</sup> A study of well contamination in Ontario, Canada found that amitrole was one of the three most persistent contaminants in groundwater (the other two being dinoseb and picloram).<sup>13</sup> One well contaminated with amitrole had to be pumped dry intermittently for over two years to clean up the water, and another well's amitrole-contaminated water destroyed tobacco seedlings for two years.<sup>13</sup> Amitrole's label indicates that the herbicide is not permitted in any water intended for irrigation, drinking, or other domestic purposes.<sup>14, 15</sup>

In preparation of amitrole's 1984 registration standard (the document that indicates what studies will be needed for a decision on full, unconditional registration of amitrole), the EPA noted that the ecological effects of the full formulation, Amitrol-T, which includes hydrochloric acid and ammonium thiocyanate, are unknown.<sup>10</sup> Of 11 environmental fate data studies required, one (accumulation in fish) had been completed by 1984, thirty years after initial registration.

What are the implications, then, for amitrole's major use? Workers are mixing, loading, and spraying amitrole formulations

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along roadsides, and although amitrole is known as a potent anti-thyroid agent and probable human carcinogen, workers exposed to amitrole have not been monitored for effects on their thyroid functioning, or for rate of thyroid or pituitary cancer.

Roadsides are commonly paralleled by water-bearing ditches and amitrole is known to persist for at least 200 days in water. Water in roadside ditches commonly flows into other water courses or sinks into the ground, and yet no water used for irrigation, drinking, or other domestic purposes is allowed to contain amitrole residues. Amitrole is mobile in many soils, soluble in water, and once in groundwater, is unusually persistent.

Will we be seeing a gradual phase-out of amitrole use in the coming years? Current biotechnology research is underway to develop an amitrole-resistant variety of tobacco, using that species as a model plant system.<sup>16</sup>

--April 7, 1987

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NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

ASULAM

By Mary H. O'Brien

Asulam is one of those pesticides that make you wonder whether registration means anything: very little information has been produced on its health effects or behavior in the environment. This in spite of the fact that it has been registered for use in the United States since 1975.

A carbamate herbicide, asulam kills certain annual and perennial grasses and broadleaved herbs. Some grasses (e.g., sugarcane) and broad-leaved plants (e.g., flax) are tolerant of asulam, so it is known as a selective herbicide. Susceptible plants absorb asulam through leaves and roots and translocate it to the plant's growing points where cell division is inhibited. Asulam is a post emergent herbicide: the plants need to be actively growing to be killed by asulam.

Described by the Forest Service as a "minor but relatively stable component of forestry herbicide use,"<sup>1</sup> asulam is used on reforestation areas, Christmas tree plantings, sugarcane, and noncrop areas such as rights-of-way and building sites. No amount of asulam is legally allowed to appear on food, although it is used on sugarcane.<sup>2</sup>

The technical sales manual for Asulox (asulam) indicates that four pounds asulam per acre<sup>10</sup> is usually the highest amount required for vegetation control,<sup>10</sup> but Region 6 Forest Service applied as much as seven pounds asulam/acre prior to the 1984 court injunction temporarily halting all herbicide use by the agency.<sup>1</sup>

No registration standard has been issued by the Environmental Protection Agency (EPA) for asulam, but a short description of toxicological tests (called a "tox one-liner") is available from the EPA.<sup>3</sup> This list indicates that asulam has no adequate genetic damage tests, although several carbamates are known to produce chromosome breaks and carbamate metabolites to cause alternations in DNA.<sup>4</sup>

The California Department of Food and Agriculture (CDFA), independently reviewing these same studies (which are submitted by the pesticide's manufacturer) and applying the same EPA guidelines for acceptable testing, has determined that all major asulam tests are inadequate (i.e., both oncogenicity, both

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chronic damage, the birth defects, reproduction, and all three types of genetic damage tests). According to the CDFA, therefore, data gaps exist for asulam in all major tests of potential damage to humans.

The CDFA indicates why each test fails to meet EPA guidelines and this raises serious questions about the independence exhibited by EPA when their toxicologists, following the same guidelines, declare the same tests adequate.

According to the EPA, the oncogenicity study in rats indicates asulam causes tumors of the endocrine system (adrenal gland and thyroid). The EPA has calculated a "worst case risk assessment" for cancer in workers exposed to asulam.<sup>5</sup> With a series of conservative assumptions, the EPA estimates as many as 1 in 100 ground applicators might contract cancer from exposure to asulam over a number of years. With aerial applications, one in 1,000 flaggers might contract cancer from exposure to asulam.

The CDFA notes that a second oncogenicity study (mouse) suggests a possible incidence of skin and subcutaneous tumors but notes a number of inadequacies in the test.

Both agencies note that the reproductive effects test in rabbits resulted in a decrease in live births at two of the three asulam doses administered. Again, CDFA found the test unacceptable for a number of reasons.

If little is known about asulam, even less is known about the full formulation, Asulox: 62% of Asulox is unrevealed chemicals. What they are and whether they have ever been tested is unknown to the public. The full formulation has not been tested for any longterm health effects.

Asulam does not adsorb to soil or organic material<sup>7</sup> and does not degrade in soil that is dry.<sup>8</sup> It is highly soluble in water: 5,000 asulam parts per million (ppm) parts water will dissolve.<sup>8</sup> The EPA considers a solubility above 30 ppm to be one characteristic of a potential groundwater contaminant.<sup>9</sup> Moreover, asulam is stable in water: the manufacturer (Rhône-Poulenc) indicates Asulox does not decompose in basic water (pH  $\approx$  8.5) after four years at 104°F or after boiling for six hours.

The significance of this is that if rainfall occurs after an application of asulam, the herbicide would readily move into surface water runoff or through the soil toward groundwater where it could remain for extended periods without decomposing.

Thiocarbamates (carbamates such as asulam that contain sulfur in their molecules) are fairly volatile, readily evaporating into the atmosphere.

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A 1986 review of the scientific literature available on asulam revealed that "No information is available on the toxicity of asulam to mammalian wildlife or livestock...or the chronic toxic effects of asulam exposure to aquatic organisms." While many carbamates have relatively low immediate toxicity to mammals (Temik, or aldicarb, of watermelon poisoning fame is a notable exception), many are highly toxic to earthworms and bees. Numerous carbamate herbicides have been shown to inhibit nitrification activity in the soil.

Asulam is a typical non-food crop pesticide: it largely escapes the scrutiny of health or environmental testing, public attention, and regulation. As a result, it is a carcinogen that is being released into the environment to move into water, volatilize into air, and travel throughout plants, and no one is able to say what damage it will leave in its wake.

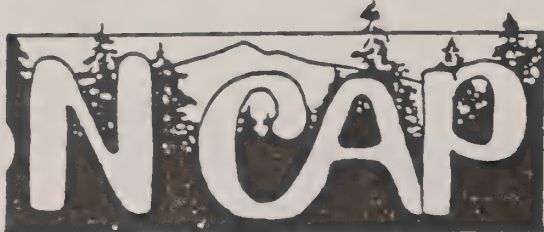
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## NORTHWEST COALITION for ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

November 11, 1986

### Atrazine

by Mary H. O'Brien

For 28 years, atrazine, a chlorinated triazine, has been one of the most widely used herbicides in the United States. Certain plant species (both grass and broadleaf) are particularly susceptible to atrazine's inhibition of photosynthesis, but atrazine is a nonselective herbicide at heavy rates of application.

Both agriculture (especially corn, sorghum, sugarcane, and pineapple) and forestry (in nurseries, conifer release, site preparation, grass and noxious weed control, and rights-of-way treatment) have extensively used atrazine. The environment and its humans are showing signs of this heavy use.

Atrazine is probably the most common pesticide contaminant of groundwater.<sup>1</sup> The leaching of atrazine through soil is due to atrazine's tendency to remain in water rather than adsorb to soil, persist in neutral or basic water (half life up to two years), persist in many soils (half-life up to a year) and dissolve in water (33 parts per million).<sup>2</sup> Conventional municipal drinking water treatment does not remove atrazine.<sup>3</sup>

For more than 15 years, biologists have been concerned that North American frogs such as the leopard frog are declining and that chemical contamination of the frogs' aquatic habitat may be the major cause of the decline. An intensive statewide survey of leopard frog populations in Wisconsin found many ponds devoid of frogs; where frogs were present, there was low survival of eggs and low survival during hibernation.<sup>4</sup> While disease was found not to be a noticeable problem, degenerative liver changes were common, implicating toxic substances.

Tadpoles collected in Wisconsin carried an average 0.90 mg/l atrazine residues, indicating that the heavily used herbicide is present in leopard frog natural habitat. Atrazine concentrations of only 0.31 mg/l have been found to significantly retard the growth of leopard frog tadpoles.<sup>5</sup>

Atrazine is acutely toxic to aquatic invertebrates such as clams, caddisfly larvae, and mayfly nymphs at 0.5 to 2 parts per million,<sup>6</sup> and is moderately acutely toxic to certain fish.

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A registration standard for atrazine was issued by the Environmental Protection Agency (EPA) in 1983, listing studies that must be performed before atrazine can be fully registered. The EPA noted that the environmental fate of atrazine and exposure to humans, wildlife, and nontarget organisms cannot be assessed because the data are "insufficient."<sup>8</sup>

The degree to which atrazine may be leading, indirectly or directly, to crop damage is of interest. Atrazine is commonly used as a pre- and post-emergent herbicide in forest nurseries. One study found that moderate post-emergence applications of atrazine (100 mg/l) to the roots of Pinus nigra and P. contorta reduced the seedlings' photosynthesis and growth.

More than two dozen weed species have developed resistance to atrazine.<sup>10</sup> It is now understood that the change of a single nucleotide in one chloroplast gene of a plant can allow a plant to resist atrazine.<sup>10</sup>

While atrazine originally appeared to be nonmutagenic in a number of assays, two researchers discovered in 1976 that atrazine was transformed by sprayed corn plants into a substance that caused mutations in yeast.<sup>11</sup> Neither atrazine nor extracts from unsprayed corn plants were mutagenic to the yeast. Other researchers have confirmed this transformation of atrazine by plant enzymes and have shown that the resulting product is mutagenic in hamster, mouse, and human cells.<sup>12</sup>

Agricultural workers exposed to atrazine, 2,4-D, and amitrole were found to exhibit a four- to 24-fold increase of various chromosome aberrations in blood lymphocytes during the middle of their work season.<sup>13</sup>

The herbicide Fogard S, which consists of atrazine and simazine, was found in 1981 to induce malignant lymphomas in mice.<sup>14</sup> While there are problems with this study, it does raise concerns about the potential of atrazine and/or simazine (another triazine herbicide) to cause cancer.

Not surprisingly, given this warning from five years ago, cancer in humans has now been found to be associated with exposure to triazine herbicides: A new National Cancer Institute study of the increased risk to Kansas farmers of contracting non-Hodgkin's lymphoma (a malignant lymphoma) following exposure to herbicides focused on 2,4-D, but also found a significant association with triazine herbicides (including atrazine).<sup>15</sup> The EPA indicated in 1984 that no acceptable laboratory oncogenicity (cancer) study is present in the atrazine file.<sup>15</sup>

It is sobering to realize that we are measuring Kansas farmers dying from exposure to atrazine before a single adequate atrazine laboratory test for cancer has been completed. Leopard frog populations may have been drastically reduced by atrazine

before anyone ever field-tested atrazine for its effects on wildlife.

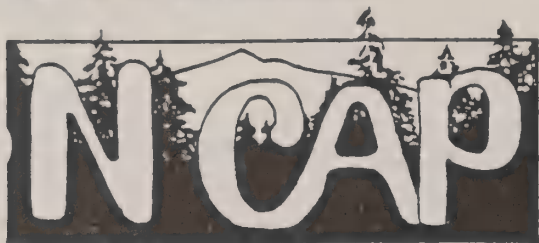
Atrazine has been one of the most widely used herbicides in the country since 1958. The environment and humans appear to have been the subjects of choice for huge tests of this herbicide. The chemical companies don't have to submit missing laboratory tests until the end of 1987.

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NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

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January 5, 1987

PICLORAM

Picloram (Tordon), a picolinic acid herbicide, is the type of herbicide a chemical company loves to sell and those concerned only with killing vegetation love to buy: it is persistent and can be used to kill a large variety of woody plants and annual and perennial broadleaved weeds.

A mixture of picloram and 2,4-D known as Agent White during the Vietnam war was sprayed by the United States on plants that survived Agent Orange (2,4,5-T and 2,4-D). That mixture is sold in the United States as Tordon 101. Certain Tordon herbicides (e.g., Tordon K, 10K, and 22K) contain only picloram as the known ingredient.

Picloram can be sprayed on foliage, injected into plants, applied to cut surfaces, or placed at the base of the plant where it will leach to the roots. Once absorbed by the foliage, stem, or roots, picloram is translocated throughout the plant where it is quite stable.

Like 2,4-D, picloram acts as a persistent auxin, a plant growth regulator, inducing disorderly growth by being present in excess of the normal amounts of auxin.<sup>1</sup>

The very characteristics of picloram that insure the killing of a wide variety of plants, however, cause trouble in the wider environment: persistence, leaching, and broad phytotoxicity (toxicity to plants) in small amounts.

Picloram persists in different soils for varying amounts of time, but may have a half life of more than four years in arid regions.<sup>2</sup> Picloram persistence can be shorter in soil with high organic content, high temperatures, and high soil moisture.

High soil moisture presents a different problem, however: Picloram leaches. It is highly soluble in water (430 ppm), does not adsorb ("stick") to soil particles, and persists in soil if moisture is not immediately present.<sup>3</sup> As a result, picloram is in the category of highest priority for monitoring by the U.S. Environmental Protection Agency (EPA) as it conducts a national survey of groundwater contaminants.<sup>4</sup> Picloram has repeatedly been found as a contaminant in groundwater and wells.<sup>5, 6</sup>

In a study of the effect of picloram on lake trout, picloram was found to reduce fry survival and inhibit growth at the lowest concentration tested (35 ug/liter, or 35 parts per billion). This type of chronic effect is missed in tests for acute toxicity, even though chronic toxicity can destroy nontarget organisms as effectively as acute toxicity. As the researchers of the study note, "Chronic toxicity of [picloram] on early life stages of lake trout is more significant than might be anticipated on the basis of only acute tests with fingerlings."<sup>7</sup>

Although picloram may be toxic at minute amounts in water, it is not easily detected at those levels. When four samples of water spiked with 50 parts per billion (ppb) picloram and 10 ppb 2,4-D were sent to ten water analysis laboratories for analyses of picloram and 2,4-D, no picloram was detected in 10 of 40 samples. The amount of picloram in the water was underestimated in 31 of the 40 samples.<sup>8</sup> Each lab had claimed to be able to detect picloram at 5 ppb.

The vapors of picloram have been found to be highly toxic to pinto beans when applied at 1/4 lb active ingredient/acre to soil in a closed system. In some situations, vapor drift, rather than droplet drift, may<sup>10</sup> cause the major portion of offsite herbicide spray damage.

The EPA is currently requiring chemical company submission of studies on picloram's nontarget phytotoxicity. The EPA's stated rationale for this requirement reflects recognition of the multiple routes by which picloram escapes a spray area: "The Agency [i.e., EPA] has determined that [picloram] damage to nontarget plants is occurring. Phytotoxicity data will be required because the Agency is unable to ascertain whether this damage is a result of applicator error, misuse, drift, leaching, runoff or persistence."<sup>5</sup>

What about animal consumption of plants containing picloram? A New Zealand study has found a significant increase of small-intestinal adenocarcinoma (tumors) among sheep grazing on pasture sprayed with phenoxy and picolinic acid herbicides (including picloram).<sup>11</sup> The prevailing rates of small intestinal adenocarcinoma among humans in New Zealand are among the highest in the world and New Zealand<sup>11</sup> is a heavy user of phenoxy and picolinic acid herbicides.

Although only acute toxicity tests are required by EPA for full formulations of herbicides, the combination of 2,4-D and picloram (as in Tordon 101) has been found to cause more severe skin effects than either herbicide alone.<sup>5</sup> The possibility that picloram acts synergistically with 2,4-D or other ingredients to cause more severe chronic effects such as cancer or kidney damage has not been studied.

In fact, the EPA indicates that it has no acceptable chronic effects study on file for picloram alone (two are required), and

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only one of two required oncogenicity (cancer) studies. The one oncogenicity study was reported by the researchers (Gulf South Research Institute) as having negative results but an independent National Cancer Institute pathologist reviewed the test slides and found picloram caused tumors in both the rats and mice.<sup>12</sup>

Picloram as sold in the United States is allowed by the EPA to contain two carcinogens: hexachlorobenzene<sup>13</sup> (up to 200 ppm) and nitrosamines<sup>14</sup> (up to 1 ppm).<sup>5</sup>

Acquainted with people who have been poisoned by picloram from hand spraying, aerial drift, and drinking water contamination, genetic toxicologist Ruth Shearer writes, "The fifteen picloram victims I know have had symptoms for at least two years following exposure to picloram used in combination with either 2,4-D or Krenite; these persons include one small child and five teenagers. All continue to suffer from pain and swelling in joints, weakness and rapid fatigue and sensitivity to re-exposure to non-physiological chemicals. Residual symptoms common to at least half of these people include chronic headaches, vision problems (poor focus or double vision) deterioration of memory and concentration, and tingling hands and feet. These symptoms are not detectable in standard animal tests."<sup>6</sup>

One cannot help but question the wisdom of registering, selling, and spraying an herbicide known to persist in the environment, volatilize, leach into groundwater, damage nontarget plants, contain carcinogenic contaminants, lack any acceptable chronic effects testing, affect humans adversely, and display synergism and carcinogenicity. There is a better way.

--Mary O'Brien  
January 5, 1987

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NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

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ROUNDUP

By Mary H. O'Brien  
September 16, 1987

Roundup is a post-emergence herbicide that kills annual and perennial broadleaf plants and grasses. Roundup is widely used on sites where nonselective vegetation removal is wanted by some people, as on roadsides, forest clearcuts, industrial sites, or cropland prior to crop emergence. Its "active ingredient," glyphosate, also appears in Rodeo, a formulation designed for use in aquatic settings. Produced by Monsanto, glyphosate is a fairly new herbicide, first registered for use in 1974.

Glyphosate is primarily absorbed by plant foliage, but may be taken up by roots in soils that minimize adsorption to soil particles. It apparently kills plants by inhibiting synthesis of an essential amino acid, thereby resulting in a reduction of protein synthesis and an inhibition of growth. Glyphosate is readily translocated within the plant, inhibiting sprouting in perennial species.

The following eight problems warrant concern when Roundup is considered for use:

1. Persistence. Although the claim is often made that Roundup is inactivated rapidly in soil, it is more accurate to say that it is usually absorbed to soil components. A sandy loam treated with glyphosate at recommended application rates (e.g., 2, 5, and 10 ug/g soil) was found to drastically reduce nitrogen fixation, growth, and nodulation of subterranean clover/Rhizobium trifolium/ planted 120 days after glyphosate treatment. Glyphosate clearly remains active in soils that do not adsorb it readily.

Damage to vine maple and bigleaf maple was found to increase during the second year following treatment with glyphosate, indicating that glyphosate persists for extended periods in plants.

2. Phytotoxicity. Because glyphosate is a nonselective herbicide, any desired vegetation must be completely protected from glyphosate drift, mist, or drip. As Monsanto notes in its Roundup label guide, "...minute quantities of this herbicide can cause severe damage or destruction to the crop, plants, or other areas on which treatment was not intended."

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3. Toxicity of 'inert' ingredients. Except for glyphosate, all ingredients and contaminants of Roundup are considered trade secret and are therefore unknown to the public. The surfactants added to Roundup to increase foliar absorption have been found to be much more toxic than glyphosate to midge larvae and some fish (e.g., rainbow trout, fathead minnow, and bluegill).<sup>5</sup> Summaries of Monsanto studies indicate that surfactants in Roundup caused "severe local skin reactions and testicular effects" in rabbits exposed to Roundup at use level and five times use level.<sup>6</sup>

4. Testing. (a) Glyphosate is only conditionally registered (i.e., only part of the tests required in 1972 by Congress for pesticide registration have been submitted). In 1986, the Environmental Protection Agency (EPA) published a registration standard for glyphosate (i.e., a list of studies Monsanto needs to submit someday for full registration).

Studies still missing for full registration include nineteen of twenty types of environmental fate studies (e.g., movement, persistence, or accumulation of glyphosate in water, soil, air, fish, irrigated crops, aquatic systems, and forests); chronic toxicity; cancer; and metabolism (i.e., chemical transformation within rats).

(b) All long-term health and environmental damage testing (e.g., cancer, reproductive effects, birth defects, chronic damage) is done only on glyphosate, not the full formulation of Roundup (e.g., with the solvents or surfactants).

(c) Practically no studies on the toxicity of glyphosate to mammals are available in the open literature; nearly all the data are unpublished and developed by Monsanto or laboratories hired by Monsanto.

5. Cancer. Monsanto finally replaced one invalid cancer study in 1985 and the replacement test indicated glyphosate causes kidney tumors (renal tubule adenomas) in mice;<sup>7</sup> these particular tumors are rarely found in untreated mice. The EPA classifies glyphosate as a class C (possible human) carcinogen.

The second required cancer test was done<sup>7</sup> incorrectly and the replacement test is not due until fall, 1990. Cancer tests are performed only on glyphosate, the active ingredient. Roundup itself has never been tested for cancer.

6. N-nitrosoglyphosate. Glyphosate may include N-nitrosoglyphosate (NNG) as a trace contaminant, or the compound may be formed in the environment when combined with nitrite (present, e.g., in human saliva or fertilizer).<sup>8</sup> The majority of N-nitroso compounds are carcinogenic.

When several researchers (including Michael Newton of Oregon State University and three Monsanto researchers) found NNG in a forest foliage sample and litter sample after aerial application

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of glyphosate, a Monsanto worker told them it might be due to "evaporation procedures" used in the analysis.<sup>10</sup> They also found NNG in deer mice viscera<sup>10</sup> during the same study; no "explanation" for this was offered.

7. Human damage. People have experienced conjunctivitis (inflammation of the eyelid and eyeball mucous membrane), dermatitis (inflammation of the skin), and severe flu-like symptoms following exposure to glyphosate.<sup>11</sup> Of 143 pesticides reported for causing human illness in California in 1986, <sup>12</sup> glyphosate was fourth in the number of incidents reported.

One county roadside worker experienced severe leg swelling and damage to veins after spraying Roundup on thistles. The thistles apparently cut through the worker's coveralls, allowing the herbicide to enter the bloodstream directly.<sup>13</sup> According to the Oregon State Accident Insurance Fund Corporation, an Oregon worker experienced anaphylactic shock (a sudden, severe sensitivity reaction) when she was watering grass that had been sprayed with Roundup; she had to be treated at a hospital.<sup>14</sup>

8. Warnings. All glyphosate products (e.g., Roundup) not labeled for aquatic use must contain this warning on the label: "Do not apply directly to water or wetland (swamps, bogs, marshes, and potholes)."<sup>6</sup> All glyphosate products not labeled for homeowner use only must contain this warning on the label: "Keep all unprotected persons, children, livestock, and pets away from treated areas or where there is danger of drift."

A "Roundup Information Packet" containing a series of articles on Roundup is available for \$10.50 postpaid from NCAP; P.O. Box 1393; Eugene OR 97440. A file of these and additional glyphosate/Roundup articles is maintained at NCAP; these can be copied at 10 cents/page.

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NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

October 10, 1987

TCDD  
(2,3,7,8-tetrachlorodibenzo-p-dioxin)

by Mary H. O'Brien

There is something about the most toxic form of dioxin, 2,3,7,8-TCDD, that must be understood: every dose ever tested has been shown to cause harm. Put another way, no one has ever found a benign dose of 2,3,7,8-TCDD. Recent events surrounding TCDD need to be considered in light of its incredible toxicity.

The compound's initials stand for 2,3,7,8-tetrachlorodibenzo-p-dioxin. The compound is a pair of benzene rings bonded together by two oxygen atoms and stocked with four chlorine atoms at specific locations on the benzene rings. Little is known about the 74 other dioxins that carry one or more chlorines at various locations on the rings, because most dioxins have not been subjected to health damage tests with laboratory animals.

TCDD has repeatedly entered the public spotlight during the last two decades, the first time as a contaminant of the Vietnam war phenoxy herbicide 2,4,5-T. This herbicide was banned in the United States in 1985 and the last worldwide production will cease this year with the closing of a New Zealand plant in December.

The famous Agent Orange trial (1978-1986) was brought by Vietnam veterans exposed to Agent Orange (2,4,5-T and 2,4-D) as it was sprayed by the U.S. military in Vietnam. The suit focused on the cancer, chloracne, and other health effects experienced by the veterans, miscarriages experienced by their partners, and birth defects suffered by their children.

Later, TCDD<sub>2</sub> was discovered in emissions from municipal waste incinerators.<sup>1</sup> The 1974 evacuation of Times Beach, Missouri residents followed the death of horses, pets, and songbirds exposed to dirt roads, yards, and horse arenas<sup>3</sup> that had been sprayed with waste oil contaminated with<sup>4</sup> TCDD. The discovery in 1980 of dioxin in Great Lakes gull eggs<sup>5</sup> and fish led to questions regarding sources of dioxin and hand wringing at the

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U.S. Environmental Protection Agency over what levels of TCDD (in soil, water, fish) should lead to "concern."<sup>6</sup>

Four new TCDD revelations in the fall of 1987 renew the cry for appropriate responses by our society:

#### 1. TCDD: Toxic in Parts Per Quadrillion

In a study to be published in the November 1987 issue of Environmental Toxicology and Chemistry, ten researchers (seven from the U.S. Fish and Wildlife Service, two from Battelle Laboratories, and one from Monsanto) report on an experiment utilizing the lowest dose of TCDD ever tested: 38 parts per quadrillion (ppq). In this study, rainbow trout (Salmo gairdneri) were exposed for 28 days to water containing TCDD at five doses ranging from 38 ppq to 789 ppq. Following this exposure period, the fish were kept in clean water for 28 days.

Within 14 days of exposure to 789 ppq, fish were dying at significant rates. By the end of the 28-day clean water phase, fish that had been exposed to 38 ppq were dying at significant rates. By the end of 28 days exposure to TCDD, significant slowing of growth had taken place and behavior was abnormal (e.g., lethargic swimming, feeding inhibition) for all exposed groups. During their subsequent 28 days in clean water, the fish resumed neither normal growth nor behavior. The weight of the controls (fish not exposed to any TCDD), meanwhile, increased 80% during the 28 days of clean water.

The researchers estimate that rainbow trout bioconcentrate TCDD in their bodies 39,000 times over the TCDD levels found in their aquatic environment.

At one level, this study should surprise no one. Eight years ago DOW researchers found that TCDD causes reproductive effects in rats<sup>8,9</sup> over three generations at exposures of one part per trillion. In 1980, EPA's Carcinogen Assessment Group concluded that TCDD is a carcinogen,<sup>10</sup> a cancer promoter, and cocarcinogen at 1 part per trillion. These were the lowest doses that had then been tested and the new rainbow trout study has simply been run at doses nearly 1,000 times lower.

That 2,3,7,8-TCDD may cause damage at all doses must be considered as a result of this study.

#### 2. TCDD in Paper Products

While learning that researchers can't find a harmless dose of TCDD even in the low parts per quadrillion, we simultaneously receive new revelations about the emissions of TCDD from pulp and paper mills: TCDD is in the streams and paper products emanating from the mills and in the fish who live downstream of the mills.

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In 1983, more than 50 parts per trillion dioxin were found in carp downstream from several pulp and paper mills on the Wisconsin River.<sup>11</sup> This same year, the EPA began a National Dioxin Study, testing at parts per billion in most soil samples and parts per trillion in fish from streams, estuaries, and the Great Lakes. (Note: The finding cited above that fish die at parts per quadrillion renders meaningless any EPA findings of "no detections" at parts per billion or trillion).

This study and the accompanying press release, issued during the last week of September 1987, indicate pulp and paper mills are a major source of dioxin pollution via their effluents and that paper products such as diapers, tampons, and coffee filters contain levels of TCDD in parts per trillion.<sup>12, 13</sup> Since TCDD bioaccumulates in the fat tissues of living organisms, the exposure of humans to contaminated paper products such as these inevitably results in accumulation of TCDD in their bodies.

The TCDD is apparently produced when naturally occurring phenols in the wood interact with chlorine employed by many pulp and paper mills for bleaching purposes.<sup>6</sup>

The release of the EPA study, delayed by nearly two years, followed by days the leak of several hundred pages of documents by an individual within the American Paper Institute, the principal trade group representing the pulp, paper, and paperboard industry. The leaked memos, meeting summaries, and letters detail EPA and paper and pulp mill industry collusion on conduct of the National Dioxin Study, how risk assessments of the findings will be made, and how public concerns over dioxin will be allayed.

The American Paper Institute insider decided to leak these papers to the New York Times and to Carol Van Strum and Paul Merrell of Five Rivers, Oregon after reading No Margin of Safety: A Preliminary Report on Dioxin Pollution and the Need for Emergency Action in the Pulp and Paper Industry, a 1987 Greenpeace report prepared by Van Strum and Merrell.<sup>14</sup> This Greenpeace report had been made possible after the EPA produced documents discussing their dioxin study and risk assessments in a Freedom of Information Act (FOIA) suit brought by Van Strum.<sup>15</sup> (The leaked American Paper Institute documents discuss EPA's plans to characterize the dioxin information they released to Van Strum as "meaningless.")

An earlier law suit filed by Van Strum, Paul Merrell, and NCAP for dioxin information<sup>16</sup> in turn had been given power in 1983 when an EPA insider leaked two pages of critical EPA study results to Van Strum's attorney, Mike Axline.<sup>17</sup> These pages indicate that TCDD had been detected in drinking water, sediments, wildlife, and tissues from a human baby born without a brain in samples taken from the Five Rivers, Oregon area following the 1970s spraying by the U.S. Forest Service of 2,4,5-T and 2,4-D on the forests there.

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The public needs to understand that critical dioxin information has been and is being consciously withheld from the public by both the EPA and the industry and that it is a few courageous individuals within agencies, the industry, and our communities who are responsible for the release of some of this information.

### 3. TCDD in Heron Eggs

A great blue heron colony of 57 nests near the British Columbia Forest Products pulp mill at Crofton on Vancouver Island was found in spring 1987 to have 100% egg failure.<sup>18</sup> In 1985, the colony's eggs had been found to contain the highest levels of TCDD among four colonies being monitored in a Canadian pollution testing program begun in 1977.<sup>19</sup> In addition to TCDD, two other forms of dioxin have been found in the eggs.<sup>19</sup>

The study of heron colonies had been undertaken in part because herons serve as an "indicator" of pollutants: herons live at the top of the food chain, will forage for food in industrialized estuaries,<sup>18</sup> and tend to remain in the same location throughout their lives.<sup>18</sup>

To speak of a species as an "indicator species" is itself an act of callousness; to allow the continued demise of individuals, populations, and species by dioxin poisoning constitutes an informed choice to remain callous.

### 4. TCDD in 2,4-D

An internationally respected German analytical chemist, Hanspaul Hagenmaier, has found a German sample of the phenoxy herbicide 2,4-D to contain 6.8 parts per billion TCDD.<sup>20</sup> Employing a new analytical procedure that allows the selective determination of 2,3,7,8-TCDD in the presence of a large excess of other dioxins and furans, Hagenmaier tested samples of six chlorinated phenol compounds and found 2,4-D to contain the highest amount of TCDD.

The study raises anew the question of whether TCDD is a contaminant of 2,4-D. When samples of 2,4-D have previously been found to contain TCDD, the EPA has claimed that this has been due to production of the 2,4-D with machinery previously used to produce 2,4,5-T, known to be contaminated with TCDD.<sup>21</sup>

The public should insist that 2,4-D currently produced in the United States be tested for TCDD using the analytical procedure developed by Hagenmaier and his colleagues.<sup>22</sup>

### Conclusion

These four events, then, repeat the inescapable message regarding TCDD: TCDD is capable of killing organisms at extraordinarily small doses, it is killing organisms at those doses, it is produced by industrial, manufacturing, and waste treatment processes that allow chlorine and phenols to interact, and we must discover where those processes are occurring and act accordingly.

Perhaps the most amazing fact in the leaked API-EPA documents is that neither the EPA nor industry ever discussed alternatives to the use of chlorine in pulp and paper mills, although Scandinavian countries have found that processes avoiding the use of chlorine result in higher profits and more complete usage of pulp.<sup>6</sup>

The dangers of TCDD first came to public light when our nation sprayed pheonoxo herbicides on Indochina as an act of war. We now understand that we are senselessly conducting the same war on ourselves and all those with whom we share this land.



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## NORTHWEST COALITION for ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

### TRICLOPYR

by Mary H. O'Brien

The use of triclopyr for chemical elimination of woody, broadleaf perennial, or annual plants is increasing, as it replaces uses once delegated to the phenoxy herbicide, 2,4,5-T (from which triclopyr differs by one atom).

Like phenoxy herbicides such as 2,4-D and 2,4,5-T, triclopyr mimics the plant growth hormone, auxin, causing affected plants to grow at a fatally unregulated rate. Triclopyr is absorbed by both leaves and roots, and is readily translocated through the plant.

Manufactured by Dow Chemical, triclopyr is generally applied aerially and on the ground as an ester formulation (Garlon 4), and by injection or basal spray or on cut surfaces as a diethylamine salt formulation (Garlon 3A). Since all but asses are injured or eliminated by triclopyr, it is used in silviculture for conifer site preparation (but usually not for conifer release) and generally for roadside, railroad, and right-of-way spraying and on industrial sites. Cut surface, injection, or basal spray applications are most frequently made on root-sprouting hardwood trees.

Appearing first in the late 1970s, triclopyr's environmental behavior and human health impacts are not well understood, and the Environmental Protection Agency has not yet indicated which studies need to be completed or redone by Dow Chemical for full registration.

The California Department of Food and Agriculture (CDFA) indicates Dow has adequately completed only four of ten major human health damage studies required for continued registration of triclopyr in California (whose requirements and standards for these tests mimic EPA). Both required studies of chronic damage, both studies of cancer causation, one of two birth defects studies, and the only reproduction study are either not completed or are inadequate.

Triclopyr is considered a mobile herbicide in soil, capable of leaching and running off in water, because water easily releases it from soil particles or organic material to which it adsorbed. Its tendency to desorb from soil particles and organic content in the soil, for instance, is as much as twenty-five times greater than the tendency EPA considers

indicative of pesticides that leach.<sup>3,4</sup> Moreover, its solubility in water (440 ppm) is fifteen times that considered by EPA as characteristic of a leacher.<sup>4,8,1</sup>

While triclopyr is degraded to other compounds fairly rapidly in water if exposed to light (half-life is 10 hours in water at 25 C)<sup>5</sup>, triclopyr is stable in water for periods up to nine months in the absence of light (e.g., in ground or well water).

Residues of triclopyr (1 part per billion or ppb) were found in runoff water in an Oregon watershed nine months after application of 3 lb/acre triclopyr to the adjacent land and 59 inches of natural rainfall.

The question of how much triclopyr appears in water soon after application, at higher rates of application, or before 59 inches of rain is of concern. Garlon 4 is highly toxic to both rainbow trout and bluegill, with 0.74 parts per million (ppm) and 0.87 ppm, respectively, killing half of the experimental population.

Persistence of triclopyr in soil varies with soil type and climatic conditions. A Swedish field study found residues of triclopyr persisting for 1 to 2 years, and in some cases in excess of 2 years, at approximately 10 percent or less of residues present immediately after Garlon herbicides were applied (at 2 lbs active ingredient/acre) to eight different forest soils.

While the Swedish soils averaged 55.4°F, likely slowing the microbial action that helps break triclopyr down, Dow Chemical Company reports a half-life of 46 days for triclopyr in loam soil after maintaining the loam at a warm 95°F and high moisture in the laboratory. Two major triclopyr metabolites in soil (trichloropyridinol and trichloromethoxy pyridine) have half-lives, according to Dow,<sup>10</sup> of as much as 279 days and 300 days, respectively, in soil. This means that nearly a year after triclopyr has broken down into these metabolites, approximately half of the metabolites would remain in the soil. The toxicity of these metabolites has not been studied.

Garlon labels indicate that conifer seedlings should not be planted in soil sprayed with triclopyr for six months, indicating that the soil will remain toxic to the conifers during that period.

Because triclopyr is absorbed by plants, residues contained in fruits or other edible portions cannot be washed off. A field study in Finland found residues in bilberries (0.7 ppm after 69 days) and cowberries (0.2 ppm after 92 days) following a single low rate of application (0.67 lb active ingredient per acre) in June. By comparison, applications of triclopyr by the U.S.

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Forest Service (Region 6) were 4-8 lbs. active ingredient per acre prior to the 1983 court injunction.<sup>12</sup>

Garlon labels state, "Do not graze treated areas or feed treated forage." The U.S. Forest Service indicates that "Treated areas should not be grazed for one year following application."<sup>12</sup> (Hear that, you wild grazers and browsers?)

In 1984, the Michigan Department of Natural Resources noticed the structural similarities of triclopyr to 2,4,5-T and speculated that a contaminant similar to 2,3,7,8-TCDD (the most toxic dioxin) could be formed during the manufacture of triclopyr. The DNR found a paper describing the synthesis of just such a compound (2,3,7,8 TCDF), whose "...shape, size, and polarity is very similar to that of TCDD although no published reports<sup>13</sup> on the chemical's biological activity are available to date."<sup>13</sup> Dow indicates that it has not detected 2,3,7,8-TCDF in Garlon.

The structural difference between both 2,4,5-T and triclopyr and TCDD and TCDF is the substitution of one nitrogen for one carbon atom in the phenol ring that is the base of each compound. Since TCDD physically inserts itself into DNA (genetic material)<sup>14</sup> and TCDF is of the same size and shape and has its four chlorine atoms in the same position, the question of whether TCDF might act in a manner similar to TCDD needs to be answered.

The California Department of Food and Agriculture indicates that the rat chronic study for triclopyr shows evidence of kidney weight increase (triclopyr is excreted via the kidney) at the insufficiently high dose, while the unacceptable mouse cancer study suggests a lung tumor effect.<sup>2</sup> Garlon 3A is severely injurious to the eyes.

No information is available on the neurotoxicity or immune system effects on triclopyr, and no long term health damage testing has been done of the full formulations of Garlon (e.g., secret ingredients make up 55.6% of Garlon 3A).

The upshot? Triclopyr can persist in soil and water, readily runs off or leaches through soil in water, can be extremely toxic to fish, is essentially an unknown in terms of effects on wildlife in the field, is missing adequate tests for most major types of health damage, and poses major questions regarding contaminants, metabolites, and secret ingredients.

The use of triclopyr as a broad-spectrum herbicide must be questioned because of its potential to persist and wander through the environment; its use as a basal spray or injection or cut stump herbicide must be questioned because of the growing recognition that many sprouting hardwoods will fail to resprout if manually cut at an appropriate time in the year.

--June 5, 1987

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NORTHWEST COALITION for  
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October 5, 1986

2,4-D  
by Mary O'Brien

2,4-D is one of the most widely used herbicides in forestry and in the world. It is a member of the chlorinated phenoxy acid chemical group which includes 2,4,5-T (now banned for all uses in the United States) and MCPA. Once absorbed through plant roots or foliage, phenoxy herbicides are translocated throughout the plant, interfering with normal cell growth, cell division, use of food reserves, and respiration.

2,4-D was first characterized by biological warfare scientists during World War II who noted that the herbicide killed a broad spectrum of broad-leaved plants while leaving most grasses (e.g., corn, wheat) intact. The potential uses of 2,4-D for agriculture were quickly noted, and it wasn't until 1962, during the Vietnam war, that 2,4-D and 2,4,5-T became used for their original purpose, namely chemical warfare.

Available in a wide variety of commercial formulations as esters, amines, and inorganic salts, 2,4-D is used by foresters for conifer release, noxious weed control, right-of-way maintenance, site preparation, aquatic weed control, thinning, wildlife habitat manipulation, and firebreak and nursery stand management.

Because 2,4-D has been widely used for numerous years, this month's column is able to draw on reports of field use of 2,4-D, rather than only relying on laboratory testing information.

At least two papers have noted an association between the presence of numerous non-conifer roots killed by 2,4-D in conifer plantations and serious infestations of Armillaria root rot. The herbicide-killed roots may create numerous food bases for Armillaria. The problem deserves full experimental studies.

Aquatic areas of a forest may be particularly sensitive to contamination by 2,4-D, as various formulations of 2,4-D have been found to persist in sediments or groundwater for ten or more months in cold temperatures or in the absence of microorganisms that can degrade 2,4-D. As of 1984, California had found 2,4-D in ten drinking water wells. 2,4-D and 2,4,5-T have been found in ponds and ephemeral streams below sprayed units several weeks after spraying.

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2,4-D

When aerially applied, 2,4-D has been found to travel 10-50 miles in central Washington,<sup>10</sup> and to enter 70% of streams monitored during a "model" spray program that had established buffer strips of 100-200 feet along streams.<sup>11</sup>

The greatest detrimental effects of 2,4-D in the aquatic environment may be direct alteration of the food chain and indirect contamination of humans who consume water and aquatic organisms.<sup>6</sup>

Deer readily browse plants sprayed with 2,4-D,<sup>12</sup> and small animals captured throughout a two week period following aerial spraying of 2,4-D in a Minnesota forest were found to be carrying an average 2.2 parts per million (ppm) 2,4-D in their kidneys and a red vole was found with 25 ppm in its kidneys.<sup>12</sup>

A recent Kansas human health study<sup>13</sup> indicates that humans exposed more than 20 days a year to 2,4-D are at a six-fold risk of contracting a rare, generally fatal cancer of the lymph system, non-Hodgkins' lymphoma.<sup>13</sup> These results are similar to those of an earlier Swedish study.<sup>14</sup>

Several reports in the medical literature indicate that peripheral neuropathy (i.e., pain, numbness, and/or paralysis of toes, fingers, legs, and arms) has occurred following minor skin exposure to dilute mixtures of 2,4-D.<sup>15-18</sup> This condition may persist many months, may frequently go undiagnosed, and occurs unpredictably.

Other acute symptoms noted include nausea, vomiting, diarrhea, headache, temporary loss of vision, weakness, burning eyes, sore throat with burning in chest, and difficulty in thinking. Residual effects include chronic respiratory impairment, bleeding tendency, concentration and memory problems, and hypersensitivity to other chemicals.<sup>19</sup>

Four amine formulations of 2,4-D have been found to be contaminated with N-nitroso compounds,<sup>20</sup> one of which (diethylnitrosoamine) has been found to be a potent carcinogen in all 20 animal species in which it has been tested.<sup>21</sup> The contaminants (e.g., a variety of dioxins), solvents, preservatives, emulsifiers, and anti-volatility agents present in 2,4-D formulations are trade secret and are generally completely unknown to the public.

Although there are numerous, serious concerns about 2,4-D, the Environmental Protection Agency (EPA) has not yet even issued a registration standard for 2,4-D. This means the EPA has not yet gone through its files on 2,4-D to determine which health and environmental damage studies are missing or inadequate and must be submitted by industry in order to fully register 2,4-D.

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Field evidence that 2,4-D both contaminates the environment and affects exposed organisms indicates that the widespread use of 2,4-D in forestry deserves reconsideration.

Note: References to this article are available from NCAP; PO Box 1393; Eugene OR 97440.

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## NORTHWEST COALITION for ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

March 1, 1987

### PESTICIDES IN SOIL

Mary H. O'Brien

The soil is the largest temporary reservoir for the accumulation of pesticide residues, and it is a reservoir about which we know very little. Since most soil is itself teeming with life and supports other life in ways we are only beginning to comprehend, it is worthwhile contemplating what can happen when a pesticide reaches the soil.

Four possible adverse effects of pesticides in soil are discussed below: persistence, runoff and leaching, disruption of soil biological processes, and erosion.

A pesticide can persist unmodified, or in a modified, but toxic, form for long periods of time. The classic example of a persistent pesticide is DDT, whose half-life in soil is as high as 20 years,<sup>1</sup> meaning that 20 years after application to the soil, approximately half of what was applied will remain; 40 years after, one-quarter will remain, and 60 years later, one-eighth will remain. The results of persistence may be legion; in 1983, eleven years after DDT was banned in the United States, the Natural Resources Defense Council found DDT and its metabolite DDE more commonly than any other pesticide in their San Francisco marketbasket survey of fruits and vegetables grown in the United States.<sup>2</sup>

Many currently used forestry pesticides are also persistent in certain soils. Picloram, a picolinic acid herbicide, has a half-life as long as four years in dry soil;<sup>3</sup> half of the triazine herbicide atrazine may remain at the end of a year.<sup>4</sup>

The half-life of an herbicide can vary greatly depending on such variables as soil organic content, temperature, and pH. Glyphosate, the active ingredient of Roundup, and its degradate, AMPA,<sup>5</sup> dissipate in different forest soils at extremely variable rates. A Finnish field study found half of glyphosate applied at label rates (2.6 kg/ha) remained eight months after application in a silt soil,<sup>6</sup> while a greenhouse study recorded a half life of three days in a silty clay loam with 6% organic content.<sup>7</sup>

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A pesticide can run off in surface water, or leach through the soil to groundwater. Until about a decade ago, it was thought that pesticides would adsorb to soil or be degraded before they reached groundwater.<sup>8</sup> In 1981, Oregon State University forest chemist Logan Norris wrote, "Most chemicals used in forestry are relatively immobile in soil....[and] do not persist long enough for significant leaching to occur." The first recorded incident of pesticide contamination of California's groundwater occurred in 1979; by 1984, 57 pesticides had been found in the groundwater of 27 California counties at 2,887 sites.

Those pesticide characteristics associated with leaching include solubility in water, half-life in soil and water, and tendency to remain in water rather than to adsorb to soil particles or organic content in the soil.

Of the 45 chemicals originally recommended for inclusion in the Environmental Protection Agency's upcoming nationwide groundwater contamination survey because of their potential to leach, 70% are herbicides or growth regulators and 7% are fungicides.<sup>10</sup> Included among the 28 chemicals of highest priority for monitoring are such forestry herbicides as atrazine, dicamba, hexazinone, picloram, and simazine.<sup>10</sup> The herbicide 2,4-D will soon be added to the list, as it appears to be reaching groundwater through normal use.<sup>11</sup>

The extremely rapid movement of pesticides by gravity through soil "macropores" such as earthworm holes or animal burrows has only recently come to the attention of researchers; until now, attention had been focused on pesticide seepage through soil by capillary movement.<sup>11</sup>

A pesticide can disrupt biological processes in soil. The soil hosts a bewildering diversity of microorganisms, soil invertebrates, and fungi, and the relationships among these organisms are only beginning to be understood. Different pesticides differentially affect these organisms, and, consequently, the interdependencies among the organisms.

Of particular interest in recent forest research are the effects pesticides may have on conifer mycorrhizae. Plants make their own food and tend to retain enzymes within the plant body. Fungi, on the other hand, do not make their own food, but are instead expert at secreting enzymes to break down materials in their environment for subsequent absorption in the form of usable nutrients. The symbiotic association of fungi with the roots of a seed plant in which fungi stimulate plant absorption of such nutrients as phosphorus, zinc, copper, and potassium while the plant supplies fungi with food it has produced is termed a mycorrhizal association. When mycorrhizae important to a plant are eliminated or decreased, growth will be stunted.

Certain pesticides appear to have the effect of inhibiting certain mycorrhizal fungi, but not others, while the mechanisms for these differential effects are frequently unknown.<sup>12</sup> Atrazine, for example, is reported to suppress ectomycorrhiza formation of oaks<sup>13</sup> but to enhance zygomycetous mycorrhizae of Liquidambar.<sup>14</sup> Field studies indicate 2,4-D may inhibit mycorrhizae important to certain pine species.<sup>15</sup>

Soil mycorrhizae do not quickly reinvade sites from which they have been eliminated. One study found that if soil had been poorly fumigated, mycorrhizal populations recovered within six months from surviving mycorrhizae, but where fumigation had been more complete, mycorrhizal populations were still severely reduced after 13 months.<sup>16</sup>

Effects on other soil organisms may likewise persist. While several papers had indicated glyphosate (Roundup) had minimal effects on soil microorganisms, a recent study found effects on population numbers of bacteria and actinomycetes to persist 214 days after glyphosate application.<sup>17</sup> The researchers note that "limited, short-term inquiries lead to confusing or misleading conclusions."<sup>17</sup>

A pesticide can cause or increase erosion. The removal of vegetation by herbicides can result in increased erosion from hillslopes, decreased streambank stability, and sedimentation of streams. Forestry use of herbicides centers on logged lands which are much more erodible than forested lands. In these cases, herbicides may not be the primary cause of sedimentation, but a factor that retards vegetative recovery and extends the period of increased erosion and sedimentation.<sup>18</sup>

Generally, very little is known about the environmental fate of most pesticides in the environment. We do not know how quickly different pesticides can move in various soils, how far, or under what conditions. We do not know how long they will persist in soil, what they will kill while remaining in the soil, or the roles played in the ecosystem by the organisms killed.

The 1986 Environmental Protection Agency (EPA) review of glyphosate studies (Roundup) required for full (unconditional) registration of glyphosate is an example of our ignorance.<sup>9</sup> Of 15 environmental fate studies required by the EPA for this herbicide, only one, hydrolysis, had been submitted by the manufacturer (Monsanto) by 1986, although glyphosate has been conditionally registered and on the market for twelve years. The other fourteen were missing, including photodegradation (in water, soil, and air), metabolism (in aerobic soil, anaerobic soil, anaerobic aquatic systems, and aerobic aquatic systems), mobility (leaching and adsorption/desorption and volatility in lab and field), dissipation (in soil, aquatic, forestry, and soil over the long term).

## I/B Public Participation and Consultation

The degree to which we are acting responsibly or wisely must be questioned when we allow pesticides to reach the soil in the absence of such knowledge.



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NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

To: Jim Torrence  
Gary Larsen  
EIS Team  
Forest Service  
P.O. Box 3623  
Portland, OR

February 18, 1988

Two nights ago I received a sad phone call. I was trying to get out of the office at 6:15 p.m. when the NCAP phone rang and a young man with non-Hodgkin's lymphoma asked me some questions with a kind, gentle voice. Did I have some information on the 2,4-D trial in Texas? Could I inform him of some of the details? I did, and then began asking him questions.

He has worked for the Soil Conservation Service ten years. When he was a new employee in Colorado, he was assigned the job one day of being flagger for a plane spraying 2,4-D. No, he wouldn't be sprayed; his only job was to let the pilot know where not to fly. In fact, however, he was sprayed repeatedly that morning and when he sat down to eat his lunch, his clothes were soaked. When he ate his sandwich, it smelled like 2,4-D. He flagged for the plane the rest of the day.

He has been asked to work around or with pesticides many times since then, but that was the time he remembered most sharply. "I was new on the job," he said, "so I was trying to please them."

This man has no TV, but on December 8, 1987, his wife was travelling up to Washington (they live in San Francisco now so he can get the best possible treatment for non-Hodgkin's lymphoma) when she stayed in Eugene for the night with a friend. I was on KVAL TV that night and she saw me speak briefly about James Greenhill, non-Hodgkin's lymphoma, and 2,4-D.

When she returned to San Francisco, she told him of the TV piece and they traced it back to KVAL, who gave my name and NCAP's phone number to him.

I sent this person some information and he thanked me. I told him I was sorry he has non-Hodgkin's lymphoma. He's dying, and he's left with some details of another man who died of malignant lymphoma and whose interests were represented by an attorney who has repeatedly represented workers who died from asbestos. These workers had been exposed to asbestos after asbestos manufacturers knew asbestos would likely cause the death of some workers.

I went home that evening, feeling so worn out and sad.

**I/B** Public Participation  
and Consultation

I hope Region 6 won't use 2,4-D any more. I can't bear the thought of workers being told to spray it and, out of ignorance, or desire to keep the job, or fear of saying no, they spray. Ten years later, if they have non-Hodgkin's lymphoma, do they have to face the fact (or learn the fact) that the Forest Service knew this might happen when the Forest Service assigned them to spray 2,4-D? That the Forest Service knew it had already apparently happened, according to surveys of other workers spraying 2,4-D?

I know the other herbicides perhaps pose similar problems or maybe even worse problems (that's why they should not be used except as a last option). But there is so much sadness at the senselessness of any more young workers dying from this herbicide. I don't want any more calls like this. I don't want you to turn your back on James Greenhill and this man by saying you "Don't know" or "We will manage the risks," or "Other herbicides might be problems too, you know."

I wish you could have heard this person speaking on the phone.

Sincerely,

Mary H. O'Brien  
Mary H. O'Brien



NORTHWEST COALITION for  
ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

March 2, 1988

Region 6 Forest Service  
ID Team for Vegetation Management EIS  
PO Box 3623  
Portland, OR 97208

Dear ID Team:

Enclosed are copies of NCAP's comments and additional comments on the Supplement to the Western Oregon Program - Management of Competing Vegetation, Draft Environmental Impact Statement. The comments are dated May 11, 1986 and June 12, 1986 respectively.

These comments are being provided to you because they are NCAP's comments on the quantitative risk assessment performed by Labat-Anderson, Inc. that is included in the Region 6 Draft EIS as Appendix D. We intended to supply them to you with our comments that were submitted February 15, but they are being supplied now just so you have them on record.

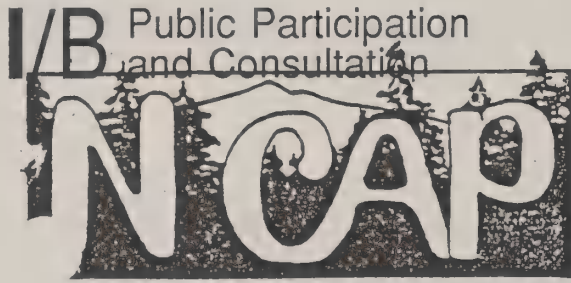
Thank you, and I hope your work on responding to the public comments is proceeding well.

Sincerely,

A handwritten signature in cursive script, appearing to read "Norma Grier".

Norma Grier  
Director





## NORTHWEST COALITION for ALTERNATIVES to PESTICIDES

P.O. BOX 1393 EUGENE, OREGON 97440 (503) 344-5044

June 12, 1986

Gregg Simmons  
Bureau of Land Management  
PO Box 2965  
Portland, OR 97208

### Additional Comments on Supplement to the Western Oregon Program- Management of Competing Vegetation Draft Environmental Impact Statement

#### Background

The following comments are offered on behalf of the Northwest Coalition for Alternatives to Pesticides (NCAAP). Earlier comments sent by NCAAP (May 11, 1986) noted some of the Supplement's deficiencies through L-38; these note some on later pages. In addition, five EPA documents referenced in the EIS had been requested by NCAAP on March 5, 1986; they were not mailed from EPA until May 20, 1986. Since those unpublished references arrived two and a half months after the Supplement was issued, the BLM will surely not consider these comments "late" in terms of the official closing period for comments on the Supplement. NCAAP requests responses to each of its comments.

#### Specific Comments

##### Mutagenicity of the 16 Herbicides

Note: Comments 1-77 are found in the May 11, 1986 comments of NCAAP on this Supplement.

BLM 78: "Amitrole does not present potential for heritable genetic effects (EPA, 1985a)."

NCAAP 78: This statement is lifted verbatim from an EPA summary of test results that cite five positive results in mutagenicity assays. Moreover, the report cites five studies in which amitrole induced transformation of cells into malignant states. The EPA concludes these transformation assays "do not necessarily show that a transformation inducer is genotoxic. These results support oncogenicity potential but not necessarily mutagenicity potential." (Emphasis added.)

*recycled paper*

Five positive mutagenicity tests and five positive transformation tests do not allow EPA or anyone else to flatly state that amitrole does not present a potential for heritable genetic effects.

BLM 79: "Based upon the inconsistent genotoxic responses...2,4-DP represents a negligible mutagenic risk for humans." (L-38)

NCAP 79: It is not toxicologically sound to state that three positive and four negative genotoxicity results are "inconsistent" given that the tests measure different processes (Ames mutagenicity, unscheduled DNA synthesis, mitotic crossing over, mitotic gene conversion, and reverse mutation) and under different conditions (activated, non-activated).

The BLM will not be able to defend its conclusion that 2,4-DP "represents a negligible mutagenic risk for humans." Remove the entire statement.

BLM 80: "Dalapon is probably not a mutagen because a 2-year cancer study resulted in no oncogenic effects." (L-38)

NCAP 80: The "2-year cancer study" was a 1960 two-year feeding study, not a cancer study; tumors were not even discussed (USDA 1984). By 1982, the EPA had no valid cancer studies on file for dalapon. (EPA, 1984g)

The BLM's statement is fraudulent. It is an absolute waste of the public's time to find out that the BLM is lying.

BLM 81: Although the BLM notes that dicamba was mutagenic in two assays (Table 3-4, L-37), the BLM concludes by the next page that "dicamba is nonmutagenic." On L-106, the BLM again discusses the two positive mutagenic responses for primary DNA damage and states that "these tests are not useful in determining human mutagenic potential."

NCAP 81: Cite your scientific source (other than a personal communication with some individual who will say that for you) for deciding that primary DNA damage tests are not useful in determining human mutagenic potential.

Remove the statement that dicamba is nonmutagenic. The worst case assumption with two positive results in standard mutagenicity assays that are done precisely

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to determine whether a compound has mutagenic potential is that dicamba appears to hold mutagenic potential.

- BLM 82: "Chromosome damage was induced by fosamine in an in vitro chromosome assay with rodent cells...Overall, fosamine is considered nonmutagenic and presents no mutagenic hazard to humans." (L-38)
- NCAP 82: This is ridiculous. Fosamine is positive in a test that Table 3-3 (L-36) indicates is of "greater applicability to humans" and the BLM concludes that overall, fosamine presents no mutagenic hazard to humans (L-38). What is this "overall?" What shred of toxicological integrity is contained in such a statement?
- Simply state that fosamine presents a potential mutagenic hazard to humans. It's the only defensible conclusion.
- BLM 83: "Hexazinone was positive for inducing chromosome damage in an in vitro cytogenetic assay with rodent cells.....Based on these results, hexazinone is determined not to present mutagenic hazard to humans." (L-38)
- NCAP 83: See NCAP 82.
- BLM 84: The positive mutagenic result for hexazinone "was observed only at very high levels and could be caused by a secondary effect, such as high iodine concentrations or pH." (L-39)
- NCAP 84: Cite your source for this judgment.
- BLM 85: Picloram is cited as being positive in a particular mutagenicity assay. "EPA has determined that the positive study was insensitive and not capable of determining mutagenicity in the test system." (L-39)
- NCAP 85: (a) Cite your source for this "EPA" conclusion.
- (b) If the test is so insensitive as to be incapable of determining mutagenicity, how did it detect picloram mutagenicity?
- BLM 86: Simazine: "A weakly mutagenic response and an increase in dominant lethals resulted from two studies with the fruit fly....This indicates that simazine may

be mutagenic in some test systems, but there is no evidence to suggest that it is a mutagenic hazard to humans." (L-39)

NCAP 86: Of course there's evidence that simazine presents a mutagenic hazard to humans. You've just cited the evidence and you've described those two positive tests as being in the category of "greater applicability" in "determining human mutagenicity" in Table 3-3.

The only defensible statement given the data you've cited is "Simazine is a mutagenic hazard to humans."

BLM 87: In one of two mutagenicity tests, tebuthiuron was positive. "Tebuthiuron was nononcogenic in long-term laboratory studies and therefore is probably not a human mutagen."

The BLM cites (EPA 1984b) as its reference that tebuthiuron was "Nononcogenic in 1 study" (Table 3-4, L-37).

NCAP 87: (a) No oncogenic study is cited in EPA 1984b.

(b) Here we have an herbicide almost totally lacking in mutagenicity studies. Two studies, one of them positive, no oncogenicity study, and the BLM concludes that tebuthiuron is "probably not a human mutagen." Eliminate the statement. It is not supportable in terms of standard toxicological thought.

BLM 88: Triclopyr: "A dominant lethal assay with rats was weakly mutagenic....Triclopyr may be mutagenic in some test systems, but there is no data to suggest that it is a human mutagen." (L-39)

NCAP 88: You've just cited the data that suggest triclopyr is a human mutagen. The dominant lethal assay with rats is a relatively insensitive test and it is a test that yields evidence that a compound reaches the gonads. The BLM has labeled that particular assay as of "greater applicability" in "determining human mutagenicity" (Table 3-3).

Your powers of denial that a hazard exists are of immense proportions.

#### Carcinogenicity of the 16 Herbicides

Table 3-4: Summary of...Carcinogenicity of Pesticides

# I/B Public Participation and Consultation

BLM 89: Atrazine: "Nononcogenic in 2 studies (EPA, 1984b)."

NCAP 89: The EPA 1984b reference cites two studies by IBT, both regarded as supplementary, meaning that they are inadequate to base registration decisions on. The reference does not indicate whether the studies were positive or negative.

Cite a reference that supports your statement of nononcogenicity in two studies or eliminate the statement.

BLM 90: 2,4-DP: "Oncogenic in 1/3 studies (EPA, 1984f)."

NCAP 90: The EPA 1984f reference lists only two oncogenicity studies, 2,4-DP being positive in one.

The BLM indicates on L-108 that three 2,4-DP oncogenicity studies have been submitted to EPA and cites EPA (1982) as a reference. The EPA 1982 reference cites two studies, the same two listed in EPA 1984f.

The BLM proceeds to describe three studies on L-108, but the two 2-year feeding studies, one referenced to EPA, 1984f and the other to EPA, 1982 are the same study according to their accession numbers.

Indicate where you got the 1/3 oncogenicity or change it to 1/2. Why is the public having to do such elementary checking on the BLM's Supplement?

BLM 91: Dalapon: "Nononcogenic in 2 studies (USDA, 1984)."

NCAP 91: The USDA 1984 reference cites a 1960 study that wasn't a cancer study and didn't discuss the presence or absence of tumors.

The only other study mentioned by the BLM as being in USDA, 1984, is a 1960 52-week dog feeding study. This is not long enough to be a cancer study and there is no indication tumors were sought.

By 1982 (EPA, 1984g), the EPA had zero chronic toxicity or carcinogenicity studies on file. Apparently the two 1960 studies do not even qualify as adequate chronic toxicity studies.

The BLM cannot cite the two feeding studies as indicating no carcinogenicity and must admit that it has no valid carcinogenicity data.



BLM 92: Dicamba: "Nononcogenic in 2 studies (EPA, 1984h); Studies not adequate according to EPA (EPA, 1985d)."

NCAP 92: If the studies aren't adequate, they don't show anything. They're both 1962 studies done prior to modern cancer guidelines and the EPA has found that they are inadequate.

Eliminate references to them and state that you have no adequate data to make a determination of oncogenicity or nononcogenicity.

The BLM needs to mention that dicamba is contaminated with 2,7-dichlorodibenzo-p-dioxin<sup>38</sup> and needs to determine whether that particular dioxin has been tested for carcinogenicity or other health damage effects.

The BLM needs to note that dicamba is contaminated with nitrosamines,<sup>38</sup> most of which have been found to be carcinogenic.<sup>29</sup>

BLM 93: Diuron: "Nononcogenic in 2 studies (EPA, 1984i); Studies not adequate according to EPA (EPA, 1985d)."

NCAP 93: Don't cite inadequate data. It violates 40 CFR 1502.24.

BLM 94: Fosamine: "Nononcogenic in 3 subchronic studies (EPA, 1984j; USDA, 1984)."

NCAP 94: Now we're citing subchronic toxicity studies for our evaluations of oncogenicity? You are in violation of 40 CFR 1502.24. Eliminate all references to them and indicate the fact that there are no data available for carcinogenicity and no data available for chronic toxicity.

BLM 95: Glyphosate: "Possibility of weak oncogenic effect in mouse study (EPA, 1985b)."

NCAP 95: Eliminate the phrase "possibility of." An oncogenic effect was observed in the mouse study: "Therefore, the Agency considers the study to be positive for oncogenicity at this time." (EPA 1985b).

If the BLM has some reference to support its phrase "Possibility of," cite it. The reference cited doesn't support it.

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BLM 96: Picloram: "Nononcogenic in 3/5 studies (EPA, 1984m; Mullison, 1985)."

NDAP 96: The EPA 1984m reference cites two valid oncology studies: one positive and one negative. The Mullison, 1985 reference refers to the same two valid studies, an invalid IBT study and the results after 6 and 12 months of a two-year feeding study, with no evidence that it is an oncogenicity study. Aside from being inappropriate to cite a DOW Chemical Worker's review of studies, the BLM is not citing any additional valid oncogenicity data beyond that cited by the EPA.

The BLM's counting procedure for oncogenicity studies is fraudulent.

BLM 97: Simazine: "Nononcogenic in 1 study (EPA, 1984n)."

NDAP 97: The only oncogenicity study cited in EPA 1984n is an invalid IBT study. In its 1985 review of this Supplement for the BLM, the EPA told the BLM that data gaps exist for oncogenicity in two species (EPA 1985d). There is no valid oncogenicity study for simazine on file, so the BLM must eliminate reference to it.

BLM 98: "The limited chronic studies conducted on simazine do not indicate that simazine is carcinogenic." (L-41)

NDAP 98: What "chronic studies?" Cite your specific references.

EPA 1984n cites one two-year feeding study and writes "Chronic toxicity and oncogenic potential could not be determined (too few animals used)..." Another 2-year feeding study has not been given a core grade and does not indicate carcinogenicity was studied. That's it.

The EPA simply states the following in EPA 1985d:

"Data gaps exist for the following:

- a. 90-day subchronic oral (rodent)
- b. Teratogenicity (rat; rabbit pending upgrading)
- c. Chronic oral (rodent and non-rodent)
- d. Oncogenicity (two species)"

Why can't the BLM state data gaps so simply? There are no valid chronic tests on file. There are no oncogenicity tests on file. There are no teratology tests on file.

BLM 99:       Tebuthiuron:   "Nononcogenic in 1 study (EPA, 1984b)."

On L-41, the BLM writes "No carcinogenic effects were observed in a chronic feeding study in which rats and mice were fed from 0 to 1,600 ppm tebuthiuron in their diets for 2 years (USDA, 1984)."

NCAP 99:       The EPA 1984b reference cites zero oncogenic studies.

The USDA reference cites a 2-year feeding study with no evidence that it was performed as an oncogenicity study. Apparently the study has not been submitted to the EPA: the EPA 1984b reference indicates zero two year feeding studies for tebuthiuron.

Remove the statement that tebuthiuron is nononcogenic in 1 study and indicate that there are no oncogenicity tests for tebuthiuron.

BLM 100:       Triclopyr:   "Nononcogenic in 3 studies (USDA, 1984)."

On L-41, the BLM writes, "For both rat and mouse 2-year feeding studies (Dow Chemical Company, 1983b, in USDA 1984) and a 228-day dog feeding study no oncogenic effects occurred in test animals exposed to triclopyr."

NCAP 100:       By 1984, the EPA had zero oncogenicity studies and zero chronic toxicity studies listed for triclopyr (EPA 1984p).

The EPA warned BLM in its review of the BLM's draft Supplement that "the studies used to establish rat oncogenic potential and an ADI were found inadequate (IBT data).... The oncogenic potential of Triclopyr, at present, remains unknown." (EPA 1985d).

(a) Since the USDA cites the Dow Chemical Company (1983b) for its "three studies," why doesn't the EPA list any of the three studies in its 1984p or 1985d reviews?

(b) Is the rat study cited in USDA 1984 the invalid IBT rat study noted in the EPA 1985d reference?

(c) Why is the BLM claiming nononcogenicity when the EPA indicates that the oncogenic potential of triclopyr is unknown?

NCAP 101:       The sum total for carcinogenicity of the 16 herbicides in Table 3-4 is:

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1 Nononcogenic:	Hexazinone (2x)
1 Uncertain:	2,4-D
6 Oncogenic (in at least one study):	Amitrole Asulam Bromacil 2,4-DP Glyphosate Picloram
8 No valid oncogenicity studies:	Atrazine Dalaon Dicamba Diuron Fosamine Simazine Tebuthiuron Triclopyr

Any worst case analysis needs to deal with the eight herbicides for which there are zero valid oncogenicity studies, not just the six for which oncogenicity has been shown. Ignorance is not bliss.

## Carcinogenicity Discussions

NCAP 102: The BLM does not discuss the fact that four 2,4-D amine salts have been found to contain 120 - 500 ppb of one or both of two N-nitroso compounds: N-nitrosodimethylamine and N-nitrosodiethylamine.<sup>28</sup>

Diethylnitrosoamine has been tested in 20 species including primates and has been a potent carcinogen in all of them.<sup>29</sup>

N-nitroso-dimethylamine and N-nitroso-diethylamine are believed to generate alkylating intermediates believed to be responsible for the mutagenic, toxic, and carcinogenic effects of the parent compounds in vivo and in vitro.<sup>30</sup>

There is no safe dose for a carcinogen and any discussion of the carcinogenicity of 2,4-D must discuss its potential contamination with carcinogenic nitrosamines.

BLM 103: The BLM describes the study of the carcinogenicity of a mixture of atrazine and simazine on L-40, L-41, L-90, L-107, and L-111.

(a) On L-40, reference is made to many flaws in this study and since the mixture caused carcinogenicity, the BLM claims that this is not considered substantive evidence for carcinogenicity in atrazine.

(b) On L-41, the BLM says the study isn't considered substantive evidence of the carcinogenicity of either constituent.

(c) No consideration is given to cancer of either simazine or atrazine in the human health risk analysis (Section 5).

(d) On L-90 and L-107, the statement is made that the tumor formation may be a result of "other chemicals in the formulation."

(e) On L-40, L-41, L-107, and L-111 references are made to putative chronic feeding study evidence that atrazine and simazine are not oncogenic.

(f) On L-90, the possibility that atrazine and simazine are synergistic for carcinogenicity is raised, but dismissed because "atrazine and simazine are not generally used in the Region for combination treatments."

NCAP 103: The following comments correspond by letter to the BLM considerations above:

(a) What flaws?

(b) Why is the possibility that either atrazine or simazine is an initiator of cancer and either atrazine or simazine a promotor of cancer not considered? If a mixture of the two pesticides causes cancer, isn't there a carcinogen or carcinogens somewhere in the formulation?

(c) and (f) Because humans may encounter the mixture of simazine and atrazine in the environment as a result of spraying by BLM, consideration must be given to the possibility that either or both of the pesticides are carcinogens. Atrazine has been found in the groundwater in numerous states, has a demonstrated half life in water that varies from 10 to 106 weeks, a half-life in soil of less than 4 to 57 weeks<sup>31</sup> and is not removed from drinking water by normal water treatment procedures (e.g., distillation).<sup>32</sup>

Simazine has been found in groundwater, has a half-life in water of 8-30 weeks, and a half-life in soil of less than 4 to 16 weeks.<sup>31</sup>



Residues of simazine and atrazine have been reported to be present in fish and invertebrates for periods as long as a year after application.<sup>33,34</sup>

(d) If other chemicals in the formulation of Fogard-S could have caused the rapid tumor formation, then other chemicals in either atrazine or simazine formulations could do so also. A person getting cancer from applications of atrazine and/or simazine does not really care whether it was due to "other chemicals in the formulation."

This illustrates the need to consider in the human risk health analysis that "other chemicals" in any of the formulations for any of the 16 herbicides may cause cancer, alone or in combination with the intended "active ingredient(s)."

(e) Chronic toxicity studies are not adequate to determine carcinogenicity unless so designed. There are no valid oncogenicity studies on file for either simazine or atrazine.

Moreover, the EPA regards both atrazine chronic toxicity studies as unacceptable for registration and considers them to be "data gaps."<sup>35</sup> The EPA review of this Supplement indicates that both simazine chronic toxicity tests are data gaps because they are inadequate (EPA, 1985d; see NCAP comment #98). Aside from chronic toxicity studies being irrelevant to the question of whether atrazine or simazine are oncogenic, the chronic toxicity studies the BLM is citing are not even sound.

#### Cancer Potency

BLM 104: "EPA recommends using a threshold approach to analyze amitrole's carcinogenicity..." (L-41).

NCAP 104: Cite documentation or a reference for this recommendation.

BLM 105: "Several aspects of this analysis make the cancer potency estimates very high (pessimistic). First, it is assumed that any dose, no matter how small, has some probability of causing cancer.... Amitrole, for example, has been shown to cause cancer in test animals only at relatively high doses." (L-41)

NCAP 105: How does the standard scientific judgment that any dose of a carcinogen has some probability of causing

cancer make a cancer potency estimate "very high?" I fail to follow your reasoning.

The amitrole example is entirely inappropriate. High doses are used because very few animals are tested. If cancer does not turn up in the few animals at some lower doses it does not mean that it would not turn up in a much larger population of animals. Your example of amitrole is toxicologically unsound.

BLM 106: "The details of the cancer potency derivation for all of the chemicals based on the one-hit model are given in Attachment C." (L-42)

NCAP 106: No details of any cancer potency derivations are given in Attachment C or anywhere else.

BLM 107: In determining 2,4-D cancer potency, "All tumors were considered, although many of them were benign." (L-43) In determining 2,4-DP cancer potency, "Only malignant tumors were considered in this case." (L-43).

NCAP 107: Why were benign tumors considered for 2,4-D, but only malignant tumors for 2,4-DP?

BLM 108: Asulam cancer potency is based on a 107-week feeding study. The cancer potency is 0.02 per (mg/kg/day). (L-43)

NCAP 108: (a) The EPA has judged this study invalid (EPA, 1983; EPA 1984b).

(b) How did BLM derive the potency figure? I cannot find a cancer potency in the EPA, 1983 reference.

BLM 109: Glyphosate cancer potency is .000034 per (mg/kg/day). (L-43)

NCAP 109: How did the BLM derive the potency figure?

BLM 110: Cancer potency figures are given for the seven herbicides for which oncogenicity studies have been performed and for which positive evidence of carcinogenicity has been noted. (L-41 - L-43)

NCAP 110: The BLM has not given formulas into which these cancer potencies have been plugged, so whether or how they were used to derive the figures in Tables C-161 - C-166 (Lifetime Cancer Risk) is unknown. Knowing the

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cancer potencies BLM claims to be using is useless if the public cannot see whether in fact those cancer potencies are used and, if used, used in an appropriate manner.

The formulas must be printed in the EIS so that the derivation of cancer risk can be followed by the public.

- NCAP 111: None of the cancer tests (except for the atrazine-simazine mixture) have been performed on the full formulation of the pesticide. Given that the EPA has indicated that inert ingredients of pesticides include benzene, formaldehyde, asbestos, carbon tetrachloride, methylene chloride, petroleum hydrocarbons, etc., all known carcinogens,<sup>3</sup> the BLM must discuss their lack of knowledge of the inert ingredients and the lack of cancer testing of the full formulation. The importance of this is the results on the Fogard S mixture of atrazine and simazine. The BLM must discuss the relevance of this missing information for the accuracy of their risk estimates (40 CFR 1502.22, April 25, 1986 version).

## Section 4: Exposure Analysis

- BLM 112: "...with inert ingredients forming the remaining portion." (L-45)
- NCAP 112: Define inert ingredients so that the public understands that inert ingredients are not inert.<sup>1-3</sup>
- BLM 113: Table 4-1 footnote: "Inhalation is negligible based on field study data." (L-47)
- "...a variety of studies have shown that inhalation exposure is very small compared with dermal exposure." (L-48)
- "Field studies of workers have consistently shown that inhalation exposure represents only a small part of the total exposure..." (L-48)
- NCAP 113: Cite the data.
- BLM 114: Table 4-2. Dietary Exposures Estimated in This Risk Analysis: Food items, realistic: Meat from a deer feeding offsite. Worst case: food items closer to treatment unit. (L-47)

"Game animals may have fed on plants from the drift area." (L-48)

NCAP 114: It is realistic to expect a deer (and other game) to feed onsite.<sup>37</sup> Calculate on that basis.

BLM 115: "...worker doses are based on actual dose levels found in field exposure studies in which no protective clothing or equipment was worn." (L-49)

NCAP 115: (a) The public is not told which worker doses are plugged in to which formulas to get the dose numbers in Tables B-1 - B-8 (which are carried to the fifth place right of the decimal point) or the dose levels (incorrectly called "doses") in Tables 4-11 and 4-12.

(b) Many of the worker studies cited by the BLM do not tell whether the workers were or were not wearing protective clothing or equipment. The Libich, et al. (1984) study indicates that the 1980 portion of the study involved workers wearing protective clothing. Were figures from that study used in the BLM formulas? The Nigg and Stamper study (1983) does not describe the clothing worn. The Kolmodin-Hedman, et al. (1983) study indicates a variety of clothing: some had rubber gloves, some high boots and a visor, etc. The Taskar, et al. (1982) study does not describe the clothing worn. The Kolmodin-Hedman and Erne (1980) study does not describe the clothing worn.

The BLM must indicate which studies they are referring to and how they know no protective clothing or equipment was worn.

It is not currently possible to figure out which worker numbers were used from which studies to get which doses.

BLM 116: "The dermal penetration rates used in the analysis were 6 percent for 2,4-D (Maibach, 1974)..." (L-50).

NCAP 116: Maibach indicates (personal communication) that the dermal penetration rate must be doubled to 12% because the studies were done on the forearm, the least vulnerable portion of the entire body. Maibach indicated that this required doubling has been published since 1974. The BLM should contact Dr. Maibach. The 6% rate is not defensible.

BLM 117: "Doses for each worker category found in the studies are listed in Table 4-5." (L-51)

- NCAP 117: Doses are listed for only three of the 10 studies described on L-51 - L-53. Which doses were used from the other 7 studies? What formulas were used for any of the doses?
- BLM 118: "The realistic dose estimates are higher than those that would occur...[e.g.] during the field exposure studies, many of the less severe types of accidents occurred.... Nevertheless, their doses were used in deriving the average worker doses for that field study." (L-54)
- NCAP 118: If the "less severe types of accidents occurred" in the studies, why would that make the realistic dose estimates higher than those that would occur with the BLM? Somehow the BLM workers don't experience minor accidents? Their hoses or pumps don't ever break down?
- BLM 119: The BLM estimates public exposures "by modeling the transport and fate of the applied herbicides. (Details of the transport and fate modeling are in the next subsection." (L-55)
- NCAP 119: The modeling subsection describes considerations the BLM purportedly took into account in estimating public exposure. Nowhere does the BLM write out the formulas and indicate which numbers were actually plugged in. For instance, in Table 4-7, 0.0090 mg/sq. ft is estimated to drift onto berries and animals, 0.0043 mg/sq. ft onto the public and crops, 0.0264 onto water. Where did these numbers come from? What's the difference between berries and crops? Humans and nonhuman animals?
- This entire exposure section is not able to be reviewed by the public until formulas are described and specific numbers cited, referenced, publicly derived, etc.
- BLM 120: "Herbicide doses to individuals were calculated assuming that they drink 1 liter of the maximally contaminated water." (L-60)
- NCAP 120: Once? Ten times? Aside from calculating lifetime doses for cancer, the BLM needs to consider cumulative effects of drinking contaminated water more than one day.



BLM 121: Residues in Game Animals: "This is similar to the method used in the exposure analysis of USDA (1984)." (L-61)

Dermal Exposure (L-61)

NCAP 121: What are the actual residues calculated? What are the formulas?

BLM 122: "Lifetime exposures to the public for the five [do you mean seven?] herbicides [in the cancer risk analysis] were derived by assuming a realistic estimate would be a single exposure per lifetime..." (L-63)

NCAP 122: When a watershed is sprayed, exposure is not for one day, whether in water, soil, etc. (See, for instance, the comments of Carol Van Strum and Paul Merrill regarding the continuing contamination of the Coast Range environment by TCDD years after 2,4,5-T spraying.)

Cite evidence that water will be pure the second day, berries will be uncontaminated, game will have residues for one day, etc. Why is a one day scenario considered realistic?

BLM 123: Vegetation contact: "In most casesm [sic] measurements of the total plant residues over [sic] time were available, so this data has been used to calculate degradation rates in those cases where surface measurements were unavailable." (L-63)

Table 4-10 (L-64) lists doses due to vegetation contact on day 1, day 30, and day 90.

NCAP 123: (a) Cite your references for each of the degradation rates.

(b) Why is vegetation contact dose 0.0 for picloram on the first day?

BLM 124: Effect of Body Size on Exposure: "All doses estimated in the exposure analysis were calculated for a representative 50-kg person.... [A] 20-kg child will receive a dose that is 36 percent greater in terms of mg/kg than it would be for a 50-kg person." (L-63)

NCAP 124: (a) What is the reference for this calculation? An estimate of infant and adult exposure to carbon tetrachloride near a hazardous waste disposal site indicated a 5-fold difference.<sup>39</sup>

Cite your evidence for your calculation of only a 36% increase.

(b) The only accounting for children appears in this statement and Table 4-9 (L-63) where the 2,4-D aerial routine-worst case scenario dose is figured for a 44-pound child and a 110-pound adult. Where are estimates of margins-of-safety for children? What is the meaning of a 36% greater exposure (which is an unreasonably conservative estimate)?

(c) Where is consideration of the particular vulnerabilities of children because of their immature immune system, rapidly dividing cells, undeveloped nerve system, etc.?

BLM 125: Lifetime doses are listed in Tables B-24 - B-32, (L-68, L-123 - L-130)

NCAP 125: What numbers went into what formulas for these doses? What estimates of persistence in water, on food, on the vegetation? How can those tables possibly mean anything to the public if the formulas and numbers are not spelled out? (See 40 CFR 1502.24, 1502.1)

#### Section 5: Human Health Risk Analysis

BLM 126: Reproductive effects are described as "fetotoxic and maternal toxic" effects. (L-69)

NCAP 126: The BLM is failing to consider paternal reproductive toxicity.

BLM 127: "The ratio between the animal NOEL and the estimated human dose, referred to in this analysis as the margin of safety (MOS), is used to account for the uncertainty inherent in relating doses and effects seen in animals to doses and effects seen in humans." (L-69)

NCAP 127: There is no "margin of safety" immediately below the NOEL (see NCAP comments #6 and #9).

BLM 128: "For convenience in this analysis, the ratio between the herbicide's LD<sub>50</sub> and the estimated human dose also is expressed as an MOS [margin of safety]; however, it should not be interpreted in the same way as the

MOS based on a NOEL in terms of the expectation of no effects in humans." (L-69)

NCAP 129: (a) Cite a standard toxicological reference for this bizarre use of the term "margin of safety." If you can't, eliminate the whole concept or be in violation of 40 CFR 1502.24.

(b) What is the BLM's interpretation of an MOS based on an LD<sub>50</sub>? If the margin of safety is 100, is a population within 100 dose levels of having 50% of them die?

BLM 129: "A negative ratio infers that the estimated dose (given all the assumptions of the scenario) represents a clear risk of possible acute effects if the ratio is based on the LD<sub>50</sub> or of possible chronic effects if the ratio is based on the systemic or reproductive NOEL." (L-69)

NCAP 129: A negative ratio based on the LD<sub>50</sub> infers that more than half of the population would be dead; a negative ratio based on a systemic or reproductive NOEL could mean acute and/or chronic effects. The sentence has no toxicological soundness to it.

BLM 130: "Comparing one-time or once-a-year doses (such as those experienced by the public) to NOEL's derived from lifetime studies tends to greatly overestimate the risk from those rare events." (L-69)

NCAP 130: It is impossible to claim this. Effects aren't looked for after a single low dose. Some of the effects noted at the end of a chronic study could have occurred quite early. In the absence of looking for effects after a single dose, no one can say whether risk of damage from a single exposure is underestimated or overestimated by a NOEL. That is simple logic.

BLM 131: "A worst case analysis of cancer risk is conducted ...for herbicides for which there is scientific controversy about the their ability to cause cancer, such as...glyphosate." (L-69)

NCAP 131: Where is the controversy about glyphosate? The EPA has reviewed the study in which tumors of a type not seen in unexposed animals was seen in the test animals and concludes that a carcinogenic effect was recorded. Given the fact that after 14 years of selling Roundup, Monsanto still has only produced one valid cancer test

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and it indicates carcinogenicity, the controversy should center on why the 1972 Federal Insecticide, Fungicide and Rodenticide Act has not been fulfilled and enforced.

Cite references for the controversy about which the BLM is concerned.

BLM 132: "...lifetime dose over a 70-year period (computed in Section 4) with cancer potency estimates derived in the Hazard Analysis section." (L-69)

NCAP 132: General components of lifetime dose were described in Section 4; no doses were computed. Cancer potency estimates were presented in the Hazard Analysis section; none were derived.

Lifetime doses must be computed in a public manner; cancer potency estimates must be derived in a public manner.

BLM 133: The probable risk of the herbicides causing mutations is "based on the available evidence of mutagenicity and carcinogenicity." (L-70)

NCAP 133: There is not enough mutagenicity data to estimate probable risk; it is toxicologically unsupportable to base it on carcinogenicity. Cite your references from standard toxicological methodology to attempt to do so.

BLM 134: 2,4-D systemic NOEL: 1 mg/kg/day. (Table 5-1; L-70)

NCAP 134: In a 90-day range finding study (rat), kidney effects were observed at 1 mg/kg/day. (EPA, 1985c) How can the BLM claim that no effects are observed at 1 mg/kg/day?

BLM 135: "The large ratios compared to the LD<sub>50</sub> indicate very little chance of acute effects." (L-70).

NCAP 135: This is ridiculous. The LD<sub>50</sub> is a measure of death. A compound could cause a nonlethal acute effect at a very low dose and still have a very high LD<sub>50</sub>. If I am wrong, cite your reference. If you can't cite a reference for your statement, eliminate it.

BLM 136: Table 5-2: Lowest Margins of Safety for the General Public Under the Routine Scenarios. (L-71)

NCAP 136: The table is meaningless unless the entire pesticide formulation has been tested. If the BLM intends to spray only the active ingredient, the margin of safety tables may have some integrity, depending on the adequacy of the test on which they are based and the accuracy of the exposure estimates (which is currently unknown, given that the BLM has not indicated the formulas and numbers used to estimate exposure or the references supporting the use of those numbers).

If the BLM intends to use the margin of safety tables, it must: (a) explain that their only utility is to describe a nonexistent case of only the active ingredient being sprayed; (c) present formulas used to derive the margins of safety; (d) indicate numbers that were plugged into the formulas; (e) guarantee the professional integrity of the numbers with references using standard toxicological methodology.

BLM 137: Triclopyr margins of safety are described in Table 5-2. (L-71)

NCAP 137: The EPA's comment on Table 5-2: "[A] margin of safety cannot be established for Triclopyr - the studies used to establish rat oncogenic potential and an ADI were found inadequate (IST data)." (EPA, 1985d) The BLM is violating 40 CFR 1502.24.

BLM 138: "The levels predicted on berries are also higher than those found in similar forest plants (USDA, 1984)." (L-72)

NCAP 138: What levels? The drift estimates in Table 4-7? How do those correspond to the 4 ppm found on raspberries after aerial application of 2,4-D in a Minnesota monitoring study?<sup>40</sup>

BLM 139: "[T]he levels predicted for deer in the routine-realistic scenario are similar to the highest levels found by Newton and Norris...who did not find levels greater than 0.08 parts per million in edible deer tissues." (L-72)

NCAP 139: What levels did the BLM use? I don't even know where they are indicated in the Supplement. The section on "Residues in Game Animals" (L-60) talks about how the levels were derived, but it doesn't tell what the levels were or the precise formulas used or numbers. So how is the public supposed to be able to judge the accuracy of the above sentence?



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Note: Rather than harp on this again and again, the general point is this: none of the dose numbers, exposure numbers, margin of safety numbers, lifetime exposure numbers - none of them - can be traced or judged for their accuracy by the public.

The Supplement is going to have to be reissued as a draft Supplement once it is readable by the public.

## Risk to the Public from Herbicides Used in Brown and Burn Operations

NCAP 140: (a) What are the references for the half-lives of 2,4-D, glyphosate and triclopyr? (L-74)

BLM 141: "The health risk from potentially toxic pyrolysis products is negligible because the amount of the available parent compound for burning is insignificant after 5 months." (L-75) (Emphasis added)

NCAP 141: (a) Much of the concern over slash burn smoke has to do with the total amount of chlorine present to produce such compounds as HCl (hydrochloric acid), Cl<sub>2</sub> (chlorine), COCl<sub>2</sub> (phosgene), and ClO<sub>2</sub> (chlorine dioxide).<sup>41</sup> Some of these compounds are as much as 800 times as toxic than the parent herbicides from which they are constituted.<sup>41</sup> Moreover, these chlorine compounds cause respiratory problems ranging from coughing to chronic bronchitis, pulmonary edema, to pneumonia.

What compounds do 2,4-D, glyphosate, or triclopyr degrade to and how long are they present on the wood?

(b) Cite references for the assumption that the herbicide spraying occurs no sooner than five months before spraying.

(c) The BLM does not mention that polynuclear aromatic hydrocarbons (PNAHs) have been detected in slash burn smoke, ash, and litter.<sup>41,48</sup> As PNAHs are carcinogenic and may be absorbed into the charcoal particles people inhale through slashburn smoke, the Supplement must address this problem.

(d) The BLM does not mention the problem of aerosols generated in slash burning.<sup>47</sup>

BLM 142: Assumptions #1-#7, (L-74).

- NCAP 142: Cite references for these assumptions.
- BLM 143: "Temperatures during the burning of vegetation are expected to reach at least 1,000 degrees Celsius..."
- NCAP 143: (a) Cite your reference for this in terms of the conditions that prevail in western Oregon slashburns.
- (b) More relevant than the temperature that is reached is the temperatures that prevail throughout slash burning. What are those temperatures?
- BLM 144: "No information on the combustion of triclopyr is available." (L-75)
- NCAP 144: What significance does that incomplete information hold for BLM research or risk concerns?
- BLM 145: Pyrolysis of glyphosate produces alkylpyridines, acetonitrile, alkylpyrazines, benzene, and toluene. (L-75)
- NCAP 145: The BLM needs to discuss the possibility of damage if humans breathe such products.

#### Cancer Risk

- BLM 146: Cancer risk is discussed only for those active ingredients for which valid oncogenicity tests exist indicating positive results. (L-80)
- NCAP 146: (a) The public is concerned about the potential cancer risk of those herbicides for which no cancer test has been performed. Since only an oncogenicity test can detect cancer, the BLM needs to state that the potentiality exists that atrazine, dalapon, dicamba, diuron, fosamine, simazine, tebuthiuron, and triclopyr may cause cancer.
- For each of these herbicides, the BLM merely says that available data (i.e., data in tests that are not oncogenicity tests, often data that are in chronic effects tests judged inadequate by EPA, some even in subchronic effects tests) do not indicate carcinogenicity. The BLM apparently feels it can then spray these herbicides without telling the public that cancer may result.

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An example of this is glyphosate: until 1985, there was no valid oncogenicity test for glyphosate. "Available data" did not indicate carcinogenicity. Yet when a valid test was completed, it indicated glyphosate causes a type of tumor not found in unexposed mice. In other words, an herbicide the BLM would have pretended had no potentiality for cancer, does.

(b) Numerous inert ingredients are listed by the EPA as carcinogens.<sup>3</sup> What do you do about these carcinogens in a cancer risk analysis when they may be the precise inert ingredients that BLM is spraying?

BLM 147: "N is the number of days during which the dose D occurs during an individual's lifetime [for calculation of cancer risk]." (L-81)

NCAP 147: What is N for each of the eight herbicides being considered carcinogenic? What are the references for the N?

BLM 148: Herbicide applicators working for 5 years are estimated to be exposed to herbicides 30 to 70 times. A person working 30 years totals 288 to 480 exposures.

NCAP 148: Cite references for these estimates, based on field data.

### Risk of Heritable Mutations

BLM 149: "No human studies are available that associate any of the herbicides with heritable mutations." (L-87)

NCAP 149: Add or substitute the following sentence: "No human studies are available that indicate the herbicides will not cause heritable mutations."

BLM 150: "...[M]utagenicity and carcinogenicity both follow similar mechanistic steps..." (L-88)

NCAP 150: Cite a reference other than a gypsy moth EIS. The two processes are different. Mutation is a change in DNA structure. Cancer is a change in DNA function. Function can be disrupted without disrupting structure and vice versa.

- BLM 151: "Asulam and glyphosate tested negative for mutagenicity in all assays conducted, and thus can be considered to pose no mutagenic risk." (L-88)
- NCAP 151: (a) Asulam has one valid mutagenic assay (see NCAP comment #67). A battery of mutagenicity tests must be conducted to test for any of numerous potential types of mutagenic potential.
- (b) The BLM just got finished saying "the increased risk of cancer can be used to approximate the quantitative risk of heritable mutations" (L-88). Glyphosate has been shown to be carcinogenic, and now the BLM claims it has "no mutagenic risk." ????
- BLM 152: "Fosamine, hexazinone, simazine, and triclopyr were nonmutagenic in the great majority of assays and were nononcogenic in all of the carcinogenicity tests performed; therefore, it can be assumed that their mutagenic risk is slight to negligible." (L-88)
- NCAP 152: Eliminate this statement: see NCAP comments #24, 94, 97, 100.
- BLM 153: "The lack of positive results in mutagenic or oncogenic tests with diuron suggests that diuron would present a very low risk to humans as a mutagen." (L-88)
- NCAP 153: The BLM states on L-37 that there are zero mutagenicity tests reported for diuron and no adequate oncogenic tests. We pay tax money to have the BLM write fraudulent sentences like the one above?
- BLM 154: "Atrazine tested positive for mutagenicity in 15 of 33 assays. However, many of the positive results were achieved through tests that may not be relevant to evaluating mutagenic risk in humans...[etc.] (L-88)
- NCAP 154: See NCAP comment #27.

#### Synergistic Effects

- BLM 155: Kodiba and Mullison (1985) are the only source cited for the discussion of synergistic effects. (L-89)
- BLM 155: Mullison is a Dow employee. The reference is to a trade magazine, the Farm Supplier. The BLM is going

## I/B Public Participation and Consultation

to have to cite something besides a Dow worker's article in the Farm Supplier to guarantee the professional integrity of their discussion.

ELM 156: "[S]hort term toxicity studies are always done prior to the selling of a pesticide mixture. Should synergism unexpectedly be present in a proposed commercial mixture of two pesticides, it would be identified in such cases and would then be dealt with accordingly." (L-89)

NCAP 156: (a) Synergism for delayed effects or from chronic exposure would not be identified.

(b) Many combinations of pesticides are encountered that were never sold as a mixture and were not even tested for acute toxicity.

BLM 157: Kociba and Mullison say the LD<sub>50</sub>s of 2,4-D and picloram separately bracket the LD<sub>50</sub> of the mixture, indicating the lack of a synergistic effect. (L-89)

NCAP 157: Since only LD<sub>50</sub>, dermal sensitization, and eye irritation tests are required of full formulations (e.g., products that include both 2,4-D and picloram), the chance of detecting synergism is low. Picloram and 2,4-D have shown just this synergism in skin sensitization studies. (EPA 1984g).

It would seem wise to test 2,4-D and picloram for other synergistic effects. At the very least, it must be stated that there is evidence that 2,4-D and picloram are synergistic.

BLM 158: "Based on a review of acute LD<sub>50</sub>'s for mixtures of 2 or more of the 16 herbicides used in this analysis that have been submitted to EPA, no synergistic effects were found." (L-89)

NCAP 158: Cite references for this statement or eliminate it.

BLM 159: "Silvicultural and range applications are not annual; there are typically many years between applications." (L-89)

NCAP 159: Cite field evidence for this on sites where slashburning, site preparation, and crop tree release programs are in effect.



BLM 160: "...[A] number of acres are treated with mixtures of herbicides." (L-39)

NCAP 160: What acreages and what mixtures?

Attachment A: Details of Mutagenicity  
and Carcinogenicity Testing

BLM 161: Atrazine: "Because plant metabolism is not generally considered important in developing a human hazard assessment, the relevance of the [positive mutagenicity] 'plant-activated' tests in a risk analysis is doubtful."

NCAP 161: If plants metabolize atrazine to a mutagen, and humans eat plants or eat animals that ate plants, how is it not relevant? Cite a toxicology reference that states that plant-activated mutagens are not relevant to human risk. Or eliminate the statement.

BLM 162: Amitrole: Laboratory cancer studies are discussed.

NCAP 162: Discuss the Swedish study showing a significantly elevated tumor incidence among Swedish railroad workers exposed to amitrole.<sup>44</sup>

BLM 163: 2,4-D: Laboratory cancer studies are mentioned.

NCAP 163: Discuss the various Swedish epidemiological studies indicating association between phenoxy herbicides and cancer.<sup>42</sup>

In particular, a study of human exposure to phenoxy herbicides that are less prone to contain dioxins and furans (MCPA, 2,4-D, and analogous phenoxypropionic acids, mecoprop and dichlorprop) carry a relative risk of 6.8 for the rare cancer, soft-tissue sarcoma.<sup>43</sup>

Discuss the Danish human exposure study that found workers in a pesticide factory exposed predominantly to MCPA (a phenoxy herbicide which, like 2,4-D, is unlikely to be contaminated with TCDD) to experience five cases of soft-tissue sarcoma in contrast to 1.84 expected cases. The author writes, "This result supports the Swedish observation of an increased risk of STS following exposure to phenoxy herbicides unlikely to be contaminated with 2,3,7,8-TCDD."<sup>46</sup>

# I/B Public Participation and Consultation

BLM 164: Picloram: Laboratory cancer studies are mentioned..

NCAP 164: Discuss the study that found exposure to phenoxy, picolinic acid herbicides (e.g., picloram), or both was associated with significant increases in small-intestinal adenocarcinoma among sheep grazing in New Zealand.<sup>45</sup> This has potential relevance not only for grazers and browsers, but for humans: the New Zealand rates of human colon cancer are among the highest in the world.<sup>45</sup>

## Conclusion

A summary of problems endemic to this Supplement and requiring a major rewrite and issuance of a new DEIS was given in the section, "Sudden Finish" (pp. 30-31) of NCAP's May 11, 1986 comments on this Supplement. They will not be repeated here.

These additional comments are offered as additional evidence that the inaccuracies, unsupported statements, uncited studies, and lack of professional standards are too numerous for a mere patching-up to become a Final EIS. Moreover, the calculations for exposure, dose, cancer risk, and margins of "safety" must all be spelled out and made publicly accountable.

Sincerely,

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Mary H. O'Brien  
NCAP Information Coordinator

## References

(References 1-27 are to be found in the May 11, 1986 comments of NCAP on this Supplement.)

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NORTHWEST  
FORESTRY  
ASSOCIATION

001386

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February 15, 1988

Mr. James F. Torrence  
Regional Forester  
U.S.D.A. Forest Service, Region 6  
P.O. Box 3623  
Portland, Oregon 97208

RE: Draft Environmental Impact Statement for  
Controlling  
Competing and Unwanted Vegetation

Dear Mr. Torrence:

Enclosed is an analysis of the Vegetation Management Draft Environmental Impact Statement prepared by the staff of the Northwest Forestry Association (NFA). These comments represent the formal position of the Association, its Board of Directors, and membership.

NFA is a trade organization comprised of approximately 75 manufacturers of forest products and forest landowners located throughout the Pacific Northwest. Its members all share a significant dependence on timber produced on federal forest lands for a substantial portion of their raw material needs.

The importance of an adequate and reliable supply of timber to the long-term stability of this region's economy cannot be overemphasized. Your Vegetative Management program will determine to a large degree the stability and health of communities surrounding your forest in addition to each National Forest Plan. The demand for national forest timber and its impact on the northwest's economy will undoubtedly increase during the next two decades. It is imperative that you give serious consideration to the fact that the national consumption of softwood forest products is at an all time high, that the Pacific Northwest is in a position to capitalize on the record demand, and that the limiting factor will be the supply of timber from the national forests.

The enclosed input identifies numerous serious deficiencies relative to your Vegetation Management (VM DEIS). Collectively, the correction of these concerns hopefully will provide an opportunity to utilize all reasonable vegetative management techniques. This will assist in maintaining the timber production capability of your forests and avoid potentially catastrophic economic impacts in the

Mr. James F. Torrence  
Page 2

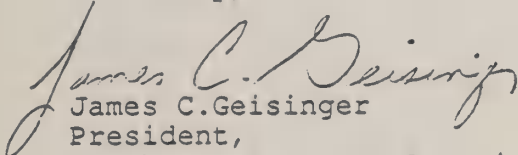
timber dependent communities surrounding the forests. We are extremely concerned that if the draft document is not re-issued or at least supplemented, that there is little chance it will sustain a legal challenge. The major flaws that we have found in this document are so serious that you need to consider the likelihood that adverse new NEPA legal interpretations could occur if this document is challenged in a court of law. It is also likely that the Forest Plans themselves may be put in jeopardy if corrections to the VM DEIS are not made. We ask that you seriously consider these comments and incorporate them into your final decision.

We support the concept of Integrated Vegetative Management which, as described under separate cover from Oregonians for Food and Shelter, would permit the use of all vegetative management techniques on a site specific basis under professional management. We should not needlessly tie the hands of the professional land managers.

We stand ready, as other organizations are, to assist you in any feasible way to assure that professional vegetative management is retained by the forest service and not dictated by the courts.

On behalf of NFA and its members, I wish to express our appreciation for the opportunity to comment on your draft documents. We look forward to participating fully in the remainder this process through the final implementation of the plan.

Sincerely,

  
James C. Geisinger  
President,  
Northwest Forestry Association

JCG:cb

Enclosure

cc: Dale Robertson  
Doug MacCleery  
Oregon and Washington Governors  
Oregon and Washington Congressional Delegation  
Oregonians for Food and Shelter  
Washington Friends for Farms and Forests  
Washington Forest Protective Association  
Oregon Forest Industries Council

NORTHWEST FORESTRY ASSOCIATION  
REVIEW AND COMMENTS ON  
THE DRAFT ENVIRONMENTAL IMPACT STATEMENT  
FOR MANAGING COMPETING AND UNWANTED VEGETATION

FEBRUARY 15, 1988

**I. RELIANCE UPON THE DRAFT FOREST PLAN PREFERRED ALTERNATIVES AS A "REFERENCE" IS INCORRECT, MISLEADS THE PUBLIC AND IS IN VIOLATION OF THE SPIRIT AND LETTER OF NEPA**

The reliance of the DEIS on the Draft Forest Plans, particularly before they were issued is incorrect. These plans are nothing more than draft documents. They hold NO legal standing and will not until a record of decision is made and the Forests begin operating on them. Alternative B should be replaced with the existing timber and land management plans the Forests are currently, and legally operating under today.

Alternative B was used as the reference point to compare economic and environmental impacts. Alternative B proposes a timber allowable sale quantity (ASQ) of between 3.8 and 4.3 billion board feet per year. The potential yield in the current plans existing and being operated under today, is 5.1 billion board feet per year. This decrease in forest plans ASQ of 19% to 27% relative to the existing plans, elevates the perception of environmental and health risks and seriously suppresses economic effects.

In fact, as the draft forest plans will provide only 70-80% of today's sale program, all of the economic and social impacts are understated by at least 20%, while perceived environmental impacts are overstated by at least 20%. Thus the public is being asked to comment on a proposed plan that is clearly biased. This directly violates NEPA (36 CFR part 1502-1508).

This reliance on an improper reference alternative results in comparisons to the other alternatives clearly underestimates the losses from lower management schemes, and characterizes modest increases in vegetative management as large increases. Choosing the wrong baseline leads the reader and the decision maker to faulty judgments about the risks and benefits of the various alternatives. An accurate and unbiased assessment of the relative risks and benefits is essential to proper decision making.

Essentially the Vegetation Management (VM DEIS) assumes the forest plan decisions are already cast in stone. The CEQ regulations state that "environmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made. 40 CFR 1502.2 (g). The comparisons in the VM DEIS justify the forest plan decisions and minimize the effect of the vegetation management proposals on timber production.

A correct no action alternative should be included in the VM DEIS to compare the existing forest plans and management with the proposed management. Until the existing plans are formally



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amended, they must serve as the no action alternative representing current management. 40 CFR 1502.14 (d), 36 CFR 219.12 (f) (7).

**II. THE VEGETATION MANAGEMENT EIS DISPLAYS AN INADEQUATE RANGE OF ALTERNATIVES, AND THEY ARE BIASED TOWARDS A REDUCED LEVEL OF FOREST MANAGEMENT**

The range of alternatives is inadequate and will not satisfy NEPA requirements. All the environmental and social effects for all of the alternatives are negative except one. However, although alternative G shows slightly positive impacts it is compared to alternative B which is already an understatement of yields because it is based on draft forest plans which propose a 20-30% reduction in timber sale levels. Thus all alternatives propose negative social and economic impacts, this intentional skewing of the alternatives is a clear violation of NEPA. The public is left trying to choose from varying degrees of "badness" and trying to do it from a biased document. More alternatives must be added to the DEIS that are on the "positive" side. In developing the range of alternatives, the Forest Service exacerbated the problem of the poor choice of a reference alternative by choosing too narrow a range of alternatives skewed to a low level of vegetative management.

**III. THE VEGETATIVE MANAGEMENT DEIS DOES NOT ADEQUATELY DISPLAY LIKELY INDIVIDUAL FOREST LEVEL IMPACTS OF RESTRICTING VEGETATION MANAGEMENT TECHNIQUES AND TOOLS**

Forest level impacts must be displayed. The DEIS uses incorrect methodologies by using assumed broad ecotypes that only represent 1/2 of the regions acreage to develop some estimate of falldown in timber yields. The methodology is incorrect, misleading and does not give the public a clear picture of what specifically will happen on their local forest. The DEIS must include an accurate, realistic assessment of the proposed program by showing forest level impacts. The VM DEIS should have been built on a forest level basis and aggregated to a regional level. Instead it was built regionally with a host of gross assumptions and then the forests were asked if it seemed reasonable. This is unacceptable.

Additionally, the estimates of changes in timber outputs and subsequent changes in county receipts and jobs are based on the change in long run sustained yield. The long run sustained yield is the timber output that is not reached for 50 to 150 years. Therefore the VM DEIS fails to show the direct effects of the preferred alternatives on the upcoming ten year sales program. The CEQ regulations defines effects to include "[d]irect effects, which are caused by the action and occur at the same time and



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place." 40 CFR 1508.8 (a).

#### IV. THE VEGETATIVE MANAGEMENT DEIS PROCESS IS OUT OF SYNCHRONIZATION WITH THE FOREST PLANNING PROCESS

The National Forest Management Act regulations require that "Regional Guides shall provide standards and guidelines for addressing major issues and management concerns which need to be considered at the regional level to facilitate forest planning." 36 CFR 219.8. The management of competing vegetation is a major regional issue that is inseparable from the on the ground management that the forest plans will direct.

The VM DEIS recognizes that the alternatives in the DEIS are regional guidelines that will affect forest plans. But the DEIS does not acknowledge the existence of the regional guide or explain the relationship between the VM DEIS and the Regional Guide. The "Use of Chemicals" was at one time included in the 15 public issues identified for regional planning in 1979. The issue was not studied because a separate EIS was prepared. Draft Regional Plan P.7

The Forest Service has fatally mis-timed the VM DEIS in relation to the Forest Plans. Since the VM DEIS sets regional direction for management of competing vegetation, this direction must be incorporated into forest plans. Only then will an accurate and site specific estimate of economic, social, and environmental effects be possible. Because of this mis-timing, the public will not see the effects of the VM DEIS until the final forest plans are published. If the VM DEIS restricts the method or use of vegetation management in some way, the assumption in the forest plans that plantations are "free to grow" must be altered. If this assumption is altered, then the ASQ's and all of the social and economic effects will change. The VM DEIS is not within the forest planning "loop" and it must become so.

Additionally, the VM DEIS is being used to resolve the air quality issue which was previously addressed and disposed of in the regional guide process. The regional guide adopted a preferred alternative for air quality. The VM DEIS apparently is proposing an amendment to the regional guide because air quality and prescribed burning is a "new issue". VM DEIS I-5.

The preferred alternative in the existing regional guide calls for an increase in prescribed burning acres while the VM DEIS requires a 23% reduction in acres burned. VM DEIS IV-23. This is a significant amendment to the regional guide that will affect forest plans and their outputs significantly. The Regional Forester has failed to determine whether the VM DEIS proposals are significant amendments to the regional guide. 36 CFR 219.8f

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We are not sure if the VM DEIS contemplates the preparation of an EIS every time herbicides are applied. We are not sure if the VM DEIS calls for an environmental assessment each time a herbicide is applied. Application of herbicides is not a major federal action in most cases. We believe a mechanism should be developed so that a costly EIS is not required every time herbicides are used.

**V. THE SELECTION OF THREE PREFERRED ALTERNATIVES FRUSTRATES THE REVIEWER WHO CANNOT DETERMINE THE PROPOSED COURSE OF ACTION**

The Forest Service should not have selected three preferred alternatives. Although permitted in the regulations, having more than one preferred alternative makes the proposed action unclear at best. Without a single preferred, the public (and other government agencies) cannot assess the impact on themselves and their business or activities. The Forest Service's "range of preferred alternatives" is not useful in identifying the proposed action or lack of action. That is the entire function of an DEIS. We are not asking for a decision in the Draft, but rather a "draft decision" to evaluate. Unless the Forest Service identifies the preferred alternative, the public gets to know that information when the Final EISS is published. The Forest Service's failure to identify a preferred alternative alone places the entire DEIS at risk of challenge under a NEPA deficiency.

**VI. THE "LAST OPTION" CONCEPT IN ALTERNATIVE "D" IS UNWORKABLE, UNREALISTIC, INSUPPORTABLE, AND UNACCEPTABLE**

This concept, conceived and supported by NCAP, will:

- a) artificially increase the administrative costs associated with herbicide use -- thereby reducing or eliminating the superior cost advantage herbicides currently maintain over other methods of vegetation control;
- b) allow the anti-technology special interest groups to harass forest supervisors and ultimately tie their hands by forcing the courts to decide whether herbicides were used as a "last resort"; and,
- c) foster an even greater negative perception in the public's mind about the risks of herbicide use -- resulting in increased restrictions on pesticide use outside of the Forest Service's vegetation management.

This concept should be dropped from consideration in vegetation management. The DEIS never even bothers to define what this concept means which is an open door to environmentalist harassment. Since "last option" is not defined in the DEIS it is inappropriate to wait until a court decides what the definition

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is. Not defining this term is improper and it misleads the public by leaving them uninformed. The individuals in the public have individual definitions of what this means, and if it is defined differently then their perception, the public is misled.

#### VII. THE DATA UTILIZED IN THE ANALYSIS OF SILVICULTURE EFFECTS IS INADEQUATE

Overall we find the assumptions used in the silvicultural analysis to be vague, selective in the data used, conservative, and so broad as to make the analysis virtually useless. Following are specific concerns identified by page.

#### DRAFT ENVIRONMENTAL IMPACT STATEMENT

IV-5 Long term sustained yield is not defined. How is it calculated? What models, formulas, and assumptions go into its calculations? What is uniform wood yield ?

How will the yield reductions "eventually ... lead to reductions in timber harvest levels? What are the procedures for this? is it a NEPA process with appropriate public comment? Why will the adjustments be left to the Forests when this is supposedly the decision document?

Why do you assume that only full timber managed acres will be affected by vegetation management? There are lots of acres that will be managed on long rotations such as visual areas, winter ranges that assume some type of regeneration in the forest plans that will be affected by the decisions in this document.

IV-52 It states that the VM DEIS can only go down to the subregional level to estimate effects. Is unacceptable that the true impacts can only be calculated later at the forest level. You are asking the public to comment on a program with only open ended estimates of effects.

IV-53 Appropriations are stated as having an affect on V M accomplishments. A constant budget would have a 1 1/2% impact on yields. This is estimated from the false current direction alt. B and thus it is understated by 20%. Additionally, what will be the effect if the budget is actually cut?

IV-55 The statement that long term damage could occur on fragile sites. How can this occur when the forest planning suitability screen supposedly removed those lands that would sustain damage if harvested, and those that could not be regenerated in five years? Is this a hidden land suitability reduction?

IV-56 The methodology for estimating sub-regional timber yields

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is flawed. The impacts should have been calculated using the existing plans, with perhaps some data from the new plans benchmarks. In this way impacts could be built from the forest level and summed to make a regional estimate.

IV-57 Again it is stated that forest plans will be adjusted after a decision on vegetation management. Thus you are asking us to comment on forest plans that are a moving target, and misrepresenting what we are commenting on in the forest plans.

#### DEIS APPENDIX A

A-4 what is "Timely reforestation treatments have been assumed?" On industry land the average is one year but on the Forest service lands it is frequently five years or more. This greatly affects the need for vegetation management techniques including the necessity for herbicides.

A "generic strategy" was assumed in the analysis...even aged management with artificial reforestation. What about the uneven aged management and natural regeneration on the east side? was this ignored?

Throughout appendix A you have selectively used research, applied it to areas in the region that makes for gross extrapolations that further diminish the usefulness of the analysis.

A-7 It is stated that only published information and data was used. Yet in the same paragraph you state that experience and opinions of the Forest Service were used. This is inconsistent and should be reevaluated.

A-8 What are "optimum yield tables?" Optimal for what-growth, economics, wildlife? The yield tables used in forest planning that you used are certainly not optimum for timber growth and probably not optimum for anything else as well.

You assume site productivity is affected by the vegetative management e.g. regeneration failures. This is incorrect, inherent site productivity is an independent variable that is not related to suitability determinations or stocking success.

A-9 You only conducted the analysis on 55% of the potentially suitable intensive management base. This is really only about 22% of the timber base because of management restrictions and allocations in the forest plans. The results of such a methodology are virtually worthless and can give the decision maker biased information. The entire landbase where any vegetative management could occur should have been used.



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A-10 You used DFSIM, SPS and Prognosis for your yield analysis. These models can not model stand component growth for alder, brush, hardwoods etc. What assumptions were used to evaluate simultaneous growth of multiple species?

A-13 What management assumptions were used for each ecotype? Was PCT, number of seedlings per acre, fertilization, genetic improvements, commercial thinning assumed in the analysis? each of these activities can greatly affect the yield assumptions and actual yields. Was an economic rotation used?

For the Doug-Fir/Alder analysis it was estimated the yield impact was between 25-50%. Why was only the 25% estimate carried over to the area expansion analysis. This is a bias throughout the ecotype analysis.

A-17 No yield assumptions or management prescriptions are given. We cannot evaluate the conclusions without this information.

A-21 The yield effects analysis is fatally flawed. A 50% yield reduction on 10% of the acres is absolutely not equal to a 10% reduction on 50% of the acres. These are different acres and they will respond differently to management. This whole process is a simplification beyond reasonableness and logic. The yield effects analysis should be completely redone.

A-35 The LTSY yield falldowns are probably understated by about 50% because only 50% (really less than that) of the acres were analyzed. This must be corrected as it misleads the public.

A-36 You don't list how many acres of each ecotype are on each forest. Therefore we cannot evaluate the forest level impacts.

A-37 Yields will be arbitrarily adjusted up or down 50%. What this means is not explained and speaks to the level of confidence in the analysis. This admission negates the value of your analysis because an adjustment like this beyond reasonableness. In fact, it appears to be totally arbitrary and capricious.

The numbers in the denominator of your formula are different than those listed elsewhere. They total 5.5MM acres whereas the analysis was supposedly for 4.4MM acres. Why this discrepancy?

#### VIII. THE PLANNING ECONOMIC ANALYSIS USED IS INADEQUATE

The overall economic impact table on p. B-28 is incomprehensible. But beyond that, they show almost no differences between the alternatives. The Forest Service should more clearly explain their analysis and conclusions in terms of economics and economic efficiency.



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1) LTSY calculations based on 100 year time frame whereas the forest plan data and analysis uses a 150 year projection period.

Comment: On most forests the LTSY at 100 years is the same or close to the LTSY calculated at 150 years. This calculation is simply the summation of the timber yield table volumes times the acreage base utilized, depending on the prescriptions used in that alternative. In most instances the forest inventory structure is such that the component of acres intensely managed will have the same inventory structure at 100 years as it will in 150 years. However on some forests, where there is a deficit inventory situation and the forest harvests less than the LTSY until the inventory builds up to permit a higher LTSY, the LTSY is lower if calculated at age 100 than 150 years.

Frequently, old growth "surplus" forests (those with more inventory volume than needed for a non-declining even flow level) have been changed into a "deficit" inventory condition because of the new planning assumptions. Significant reductions in land base and yields can cause a forest to go deficit from a surplus condition, and this has occurred in the NFMA plans. Most of the new deficit forests are on the westside where brush control problems needing vegetation management are so important. By simply using the draft (and unpublished at the time of the writing of the VM DEIS) forest plan analysis and assuming that LTSY at 100 years equals that at 150 years, and incorporating all of the potential flaws from the forest plans (such as MMR's) the analysis probably understates the potential magnitude of a loss of herbicides and vegetation management tools.

The V M team should have thoroughly reviewed the analysis and assumptions contained and used in each draft forest plan instead of utilizing some of the forest data Carte Blanche. Consequently, the public and other agencies cannot place any reliability on the estimates of yield falldown as portrayed in the VM DEIS.

Additionally, the timber yield falldowns as shown on a percentage acreage basis are probably understated. Full timber yields were taken from each forests FORPLAN yield files and assumed to be full yields on an acre basis. However, the forest level yields already have been reduced from a full yield level because of assumptions for "holes" in the stands, roads, breakage and defect, and a variety of other assumptions that vary by forest. On average these assumptions reduce the maximum timber yields from 10 to 20%. Thus, depending on the forest or region, the estimated falldown should be increased by 10-20% by lack of vegetation manipulation.

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2) Use of the Forest Plans as a basis for estimating impacts is in error

In addition to the problem of using the preferred alternatives as a basis for comparisons, the forest plans understate the potential productivity of each forest through a variety of potentially illegal ways. The most prominent one being the setting of Minimum Management Requirements (MMR's). In this process the Forest Service arbitrarily allocated forest lands to non timber uses before other allocations such as timber were made, and then asked the public to only comment on the non MMR allocations, stating that they were required by regulation to do this. This violates the National Environmental Policy Act (NEPA), the Multiple Use Sustained Yield Act (MUSY) the Administrative Procedures Act (APA), and probably others. Although a lawsuit has not been filed yet on this issue, it is likely that a challenge to a forest plan will be successful. If that occurs, then the VM EIS will be at risk because it is built fully upon the forest plan data and analysis which is probably flawed.

In terms of economics, the forest plans used stumpage values and costs which are years old, are incompatible with each other and bear little relationship to values and costs today. The Vegetation Management team simply used the forests costs and values, and unless verified by the Forest Service, we cannot find credibility with the present net value calculations in the DEIS. Additionally, each forest calculated its release and restocking costs differently, some including overhead and some not. These costs range from \$200-\$800 per acre on various forests and they are probably incompatible with each other. Yet the VM DEIS used all the forest data and they are unable to tell the public if they are consistent across the region or not. All costs and values should represent present values and they must be consistently constructed for the regional analysis in the VM DEIS to be accurate.

3) Relationship of management costs and values to LTSY

In the forest planning process, timberland is determined to be tentatively suitable for timber management if it passes two physical screens, first, that the land can be regenerated in five years, and second, that no irreversible soil or resource damage will occur. Then allocations are made for other resources (including MMR's which are probably illegal) and a FORPLAN run is made. If suitable timberland is not needed to meet the objectives of the alternative, then it is declared not necessary for timber management and added back into the unsuited base. The industry has major problems with almost all forests determination of physical suitability and the forest plans will propose about a 10% reduction in suitable lands. The industry in most cases does

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not support these reductions because, in general, the calls were not field verified but were made in the office. Our position is that the lands should be "innocent until proven guilty" in other words, retained in the base until field verification can be completed.

The costs and values used in FORPLAN influence the total amount of land allocated to timber management. In areas where assumed costs are high and stumpage values relatively low, lands are kicked out of solution as not being "cost efficient". Of course this has a direct impact on LTSY as there are fewer acres and less intense management in the solution. Since industry has not agreed with the Forest Service's development of costs and values in the forest plans we cannot support their use in the VM DEIS. We believe that the costs are probably overstated and stumpage values are understated in the plans. However, until the Vegetation Management team evaluates the validity of those costs and values, and unless they are accurate today, we cannot accept their use in the VM DEIS.

#### 4) Economic Assumptions

A-3 1) Cost of doing business and economic efficiencies are limitations to Forest Service programs. Appropriations are not limitless and the Forest Service must decide using some criteria whether spraying 500 acres with herbicides at \$50/acre is more efficient than trying to manually release 1000 acres at \$300/acre. Congressional deliberations always center on efficiencies of programs and are a major criteria for the Forest Service to allocate scarce funds. To dismiss this fact as an assumption in the VM DEIS is misleading and must be addressed somehow.

A-4 3) It is again unreasonable to assume substitutability of site prep and release. These management actions are used for different biological reasons and have different costs and results affiliated with them. These should have been addressed in the DEIS and not assumed away because they are really choices to be made in the field.

#### Appendix B

B-2 Top. Non market values really have little place in this analysis. They are questionably developed by the Forest Service and are frequently called "funny money". By including them in the analysis, the analysis is just muddled and more realistic monetary tradeoffs become confused. The Forest Service simply needs to acknowledge that these non timber resources have value and not include them in the analysis.



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B-2 Middle. A 4% discount rate was used in forest planning in driving the FORPLAN model. The 7 1/8% analysis referred to is simply rediscounting a 4% solution. The analysis should have been done at the 7 1/8% rate to determine the sensitivity of the solution to differing discount rates. This is a flaw that needs correcting not only in the VM DEIS but in the forest plans as well.

We question why the analysis period used was only 100 years when forest plans use 150 years or roughly 2 rotations. We understand that the electronic spreadsheet was limiting in size but one cannot assume that resource outputs and effects will be the same out 100 years as 150 years. The regional analysis should not have just added up the forest plans but rather the Forest Service should have built a regional FORPLAN model to assess likely impacts and subregional shifts in allocations and schedules from the various Vegetation Management alternatives.

B-4 Horizontal Demand for Timber

The assumption that forests cannot affect price because of their assumed "reasonable" output levels is totally without merit. The National Forests can and do affect the price of timber, and if quantities offered are restricted due to lack of vegetation management the price of stumpage will increase.

6-7 The DEIS makes note that some costs were excluded from the analysis. What costs and why were they excluded?

B-9 The budget effects table is meaningless unless alternative B line items are identified. There is no way to understand this table without data on the magnitude of the change from alternative B so the data is necessary. Use the FY'87 budget request if you can't use FY '88's data. Explain why you had to use '88 data and could not use the published '87 data.

B-10 As mentioned before the stumpage values developed for the forest plans are inaccurate and probably don't reflect today's values at all. They should all be reevaluated.

B-13 The social and economic impact analysis is inadequate. Most of the discussion is on IMPLAN, a Forest Service output driven model that no other agency uses. Most other agencies use the Bureau of Labor statistics model which is based on income and economic activity, a much more realistic model. There is no timber demand analysis in the VM DEIS and it is imperative that one be undertaken to understand the potential impacts of the proposed decisions.

B-22 The jobs related to national forest harvest are listed as

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16.92 per million BF in Oregon and 17.29 for Washington. The VM DEIS supposedly used the same basis for jobs as the spotted owl SEIS analysis. The SEIS used 25.9 jobs/mmhf in Washington and 25.13 jobs in Oregon. Why the discrepancy? This must be cleared up.

B-23 Why are the personal income effects based on 1977 dollars inflated to 1987 dollars. A 1987 base analysis should have been used since the economy has changed so much. In fact it is stated that 1972 was the base analysis period for IMPLAN which is over 15 years old and really has no merit at all.

B-23 5) Costs of Vegetation Management treatments should be considered in determining prescriptions.

This was discussed elsewhere. However, the forest plans assume that all vegetation is rendered free to grow after regeneration regardless of cost. The forests built into their average regeneration costs some expensive treatments such as hand release. However, the allocations and schedules are determined by using these high costs. We believe that the forest plans should have separated expensive treatments and traditional herbicide treatments and allowed the PNV objective function to work and thus be able to select the most efficient prescriptions for the plan. The VM DEIS simply incorporates whatever the forests did.

Additionally, the forests (westside) used DPDFSIM which is an economic optimization yield table model. By using high average release costs almost all prescriptions had negative present net worths across the west side. The Vegetation Management team should have also used yields that were based on maximum productivity and not just the economic ones. The result is that the potential productivity of the forests is probably understated whereas the costs of treatments are overstated. Thus, fewer acres came into solution in the forest plans and the potential harvest levels (sell) is understated. Therefore the projected falldowns in yield are understated from not using herbicides.

#### IX. INTEGRATED VEGETATION MANAGEMENT

As described by Oregonians for Food and Shelter as well as the Oregon Society of American Foresters, alternative B+ (OFS) or the Integrated Vegetation Management (SAF) alternatives are a concept for an alternative that the Northwest Forestry Association can fully support. IVM is an alternative that is not included in the VM DEIS. Those alternatives were supposedly designed to respond to specific issues, and therefore do not approach an optimal solution. IVM would permit the use of all viable vegetative management tools on a site specific basis utilizing the best information available and the best professional judgement



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available. This alternative should not tie the hands of the on-the-ground professionals.

The IVM approach stresses the integration of the most appropriate management strategy (no action, prevention, enhancement or correction) and the best available technology (biological, prescribed burning, manual, mechanical or chemical) to meet applicable land management goals.

The management strategy and method used will be determined on a project by project basis using consistent evaluation criteria and site-specific information to ensure that the best option for a particular project has been selected.

The need for action will be evaluated at the first sign of any competing or unwanted vegetation or other related conditions that could have a negative impact on the established individual national forest output goals for goods and services. This process stresses close monitoring and evaluation for early detection to minimize the need for large scale corrective measures or non-recoverable, significant impacts on long term environmental and productivity goals.

**OREGON ENVIRONMENTAL COUNCIL**

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Phone: 503/222-1963

COMMENTS SUBMITTED BY  
THE OREGON ENVIRONMENTAL COUNCIL  
ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR  
"MANAGING COMPETING AND UNWANTED VEGETATION"  
AS PREPARED BY THE USDA FOREST SERVICE  
PACIFIC NORTHWEST REGION

The Oregon Environmental Council would like to preface its comments on this Draft Environmental Impact Statement (DEIS) by suggesting that vegetation in the national forests which has no timber value may have other commercial or ecological values, and may not be "competing and unwanted" at all. An adequate management plan should include analysis of such values; that is one reason why we support adoption of Alternative D, which stresses the integration of ecological analysis into the management scheme.

We strongly urge the adoption of Alternative D, with the following additional elements:

- 1) A clear statement that prevention is the preferred strategy and chemical herbicides and slash burning are to be used only as last options.
- 2) A clearly defined Integrated Pest Management decision-making process for selection of treatment strategies, one which includes identification, monitoring, record keeping, a determination of injury and action levels, and a process for choosing treatment

strategies which emphasizes least impact on the environment and human health.

3) We recommend adopting certain elements of Alternative E, specifically

- A ban on use of 2,4-D, amitrole, diuron, and fosamine;
- A ban on aerial applications of herbicides;
- And a ban on burning slash treated with herbicides.

4) We also recommend banning use of 2,4-DP, bromacil, and simazine. These are recommended for a backpack-spray ban in the DEIS (Alternative E); we feel they should be banned completely if that level of concern exists.

5) The final management plan chosen should include a commitment to maintaining a current database on toxicity for use by USFS decision-makers. There are indications throughout the DEIS that information is inadequate, especially with regard to health/risk assessments; such acknowledgements imply an obligation to gather and disseminate information in order to address this data gap.

6) The use of herbicides along hiking trails and in campgrounds should be prohibited.

7) The final management plan should include complete worker safety training policies and plans.

8) The final management plan should include a policy which prohibits applications of chemical herbicides or use of slash burning within 1000 feet of privately owned property boundaries, in addition to a policy requiring notification of adjacent landowners when chemical applications or slash burning are planned.

9) The final management plan should include a policy not to use any cancelled herbicides, even if use of existing stock is allowed by law.

10) The final management plan should include a commitment to research by the USFS on the environmental and health effects of prescribed burning.

Data presented in this DEIS indicate that 27% of all acres burned were from escaped prescribed fires, and that 55% of all prescribed fires were pile burns. These figures underline the need for research, as they suggest that a) prescribed burning does not necessary correlate with reductions in the number of wildfires, and b) that not all prescribed burning has environmental benefits, since pile burning only serves a waste removal function, and actually degrades soil quality. Moreover, the Oregon Department of Environmental Quality is currently doing an inventory of the twenty-two wilderness areas included in the 1984 Act to determine whether they qualify as Class I airsheds requiring visibility protection under the Clean Air Act.

It seems probable that a majority will, in which case the USFS will face additional restrictions on the use of prescribed burning.

The USFS should undertake an extensive ten-year study of prescribed burning throughout the Pacific Northwest region; by varying the parameters among Forests, the environmental effects can be monitored as well as the correlation with wildfires.

While the USFS should be complimented on its research on emissions of particulate matter in the 2.5 micron range (IV-32-36), we feel the analysis stops short of providing the necessary information re: acute and chronic health effects. The USFS should commit to a long-term health impact study in conjunction with EPA and the Oregon Dept.of Environmental Quality and Health Division.

11) Finally, the final management plan should provide for public involvement through citizen committees at the District level, not just through the public comment process in an Environmental Assessment.

\* \* \* \* \*

Having offered these recommendations, we now offer our comments on the quality and adequacy of the DEIS, as follows:

Although the scope of this DEIS went well beyond any previous attempts at environmental impact analysis in the quality



of the discussion of preventive measures and bans in the interest of worker and public safety, and included qualitative as well as quantitative risk assessments, the document still suffered from undocumented statements or figures, biased conclusions and assumptions, incomplete analysis, and contradictory statements. It appeared to be a document written by too many different authors; it needs to be pulled together into a cohesive whole which discusses the data and builds to a well documented conclusion.

Here are some examples - although not all - of undocumented statements or figures:

- Page II-54 references USFS manuals not available to the general public; this referencing of handbooks or plans unavailable to the reader is a constant problem throughout the DEIS; the DEIS should include a brief summary of the material, not just a reference.

- Page II-24, Table II-1; insufficient information is provided with regard to how these figures are derived. Just putting figures in a Table is inadequate documentation.

- There is a statement on page II-25-26 that "...there is no convincing evidence that exposure to herbicides is more or less hazardous than exposure to smoke." Where is the data to support this statement?

- Page II-26, Table II-3: What do these numbers represent and how are they derived? Is the statement at the bottom of the

table that wildfires produce more emissions than prescribed fires documented? Why not footnote the documentation, if it is included in the appendix? This problem exists throughout the DEIS.

- The discussion on pages IV-42-43 regarding the impact of prescribed burning on water quality sounds like wishful thinking; where is the documentation that mitigation measures outlined in handbooks is effective under field conditions? What is equally disturbing about this is that, by assuming that mitigation measures are 100% effective in the field, the DEIS avoids consideration of possible cumulative impacts.

One example of the inherent assumption that mitigation measures are 100% effective is the assumption that prescribed burning can be done at controlled soil moisture levels. This assumption fails to recognize that burning is often done as wind directions dictate for smoke management purposes, no matter what the soil conditions may be.

What would happen if mitigation measures fail? ie, What's the worst case, and where's the worst case analysis?

- Table IV-15, "Road Maintenance Cost by Alternative" is another example of an undocumented table.

- On page IV-81, there is a statement to the effect that vegetation growing next to paved surfaces prevents subsurface drainage; where's the data to support this statement? Common sense would seem to indicate that vegetation helps with water uptake and helps to keep soils loose for better drainage.

- Page II-39 includes a statement that among alternatives using different amounts of herbicides or prescribed burning, "there will not be a significant variation...in effects on riparian areas or fish habitat." Undocumented, and unlikely.

There are also a number of disturbing assumptions used throughout the DEIS, including the assumption that a reduction in the use of herbicides, as is proposed for Alternative D among others, will result in reduced timber production. Again, this is not supported by data. Reduced use of herbicides may actually result in greater productivity as environmentally toxic effects are reduced and forest managers gain greater understanding of the productive systems.

An equally disturbing assumption is that reduced prescribed burning will result in more wildfires. Wildfires are out of the control of the USFS as demonstrated during the summer of 1987, and as such, all alternatives present the same risk of wildfires. It is also disturbing that the USFS assumes that repeated public exposure to smoke from prescribed burning is a safeguard against possible exposure to smoke from wildfires. On page E-15 of the Appendix is a statement that the effect of a ban on prescribed burning would be insignificant; this certainly seems to contradict any assumption that burning is necessary.

Page IV-42 includes a statement that required procedures prevent escaped fires from prescribed burns; yet according to page IV-29, escaped fires account for 27% of all burned acreage.

Page IV-31 includes a statement that prescribed burning has

the potential to degrade air quality; burning always degrades air quality.

There is incomplete discussion of possible climatic effects of prescribed burning, of cumulative and synergistic effects on soil of herbicide applications, of estimates of emissions from prescribed burning before 2000 A.D., of impacts of removal of woody debris on wildlife foodchains and habitat, of water and air quality monitoring methods, or of widths of buffer strips along streams.

The qualitative risk analysis section includes huge quantities of data, even where it's contradictory. This may have been necessary as an example of the difficulty in getting conclusive data re: toxicity, but with no discussion of the meaning of the data the information is not particularly useful to either the public or forest managers. We support the suggestion proffered by the Northwest Coalition for Alternatives to Pesticides that the USFS needs to develop a comprehensive profile on each chemical, including inert ingredients, which describes both environmental impacts and toxicity concerns.

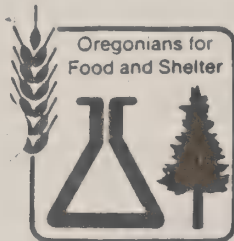
Thanking you for the opportunity to submit these comments, I remain,

Sincerely yours,



John A. Charles

Executive Director



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"For balance in facts about pesticides"

February, 15, 1988

Mr. James Torrence  
Regional Forester  
Pacific Northwest Region  
USDA Forest Service  
P.O. Box 3623  
Portland, Oregon 97208

Dear Mr. Torrence:

This letter and its attachments constitute the comments of Oregonians for Food and Shelter (OFS) regarding the U.S. Forest Service Region 6 Vegetation Management Draft Environmental Impact Statement (DEIS). As such, these comments represent the collective concerns of tens of thousands of Oregon citizens and others who are interested in the future of this region -- both ecologically and economically.

Although I have stated this in past responses to your office, I will repeat my previous statement so there is no doubt about OFS intentions. The direction and policies ultimately set by this DEIS process have the potential to dramatically effect every man, woman and child today and for many generations to come. Therefore, OFS takes the responsibility of helping to develop a workable DEIS very seriously. Our concerns are not arbitrary or capricious, nor are they intended to be disruptive in nature.

Our goal is to put in place a sustainable, legally defensible Final Vegetation Management EIS for Region 6 as soon as possible. It is imperative, however, that this EIS be more than merely legally defensible. This policy document must be workable. The EIS must allow our national forest lands to be managed safely AND efficiently with all appropriate technologies to meet the Forest Service's multiple use mandate.

This policy must also make realistic trade-offs when dealing with acceptable risks and benefits, rather than set priorities based upon irrational environmental concerns and perceptions of human health risk. The result of a policy which does not adequately weight



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OREGONIANS FOR FOOD AND SHELTER'S  
COMMENTS AS TO THE LEGAL ASPECTS OF  
MANAGING COMPETING AND UNWANTED VEGETATION

October 1987 Draft Environmental Impact Statement  
Pacific Northwest Region

On review of the above described document ("VM DEIS or DEIS"), and Appendices, it appears to Oregonians for Food and Shelter that there are aspects of the VM DEIS that are in conflict with the U.S. statutes, case law and related rules.

The following is a delineation of those aspects submitted as comments to the subject VM DEIS:

1. The methods for control of competing and unwanted vegetation are a key part of the management and silvicultural systems for production of forest resources.

The National Forest Management Act requires the Forest Service to use forest planning to "insure consideration of the economic and environmental aspects of various systems of renewable resource management, including the related systems of silviculture." 16 U.S.C. Section 1604(g)(3)(A). The control of competing vegetation is part of the system of management for the forest. Therefore, decisions about methods to control competing vegetation must be made in the context of the forest planning process.

However, the Forest Service has carefully divorced resolution of the vegetation management issue from the NFMA forest planning process. By doing so, the Forest Services is able to avoid important procedural and substantive requirements of NFMA. The vegetation management decisions must be made within the scope of the National Forest Management Act and must fully comply with the provisions of the Act. See 36 C.F.R. Section 219.1(12).

2. The control of unwanted vegetation is a regional "issue" that should be resolved through the forest plans and the regional guide.

The National Forest Management Act regulations require that "Regional guides shall provide standards and guidelines for addressing major issues and management concerns which need to be considered at the regional level to facilitate forest planning." 36 C.F.R. Section 219.8. The management of competing vegetation is a major regional issue

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that is integrally related to forest planning. The draft regional plan noted that:

"Land and resource management [forest] planning must respond to dynamic resource and socio-economic conditions and must, therefore, be driven on an issue-oriented basis. Consequently, the identification of public issues and management concerns represents a key element in the process." Draft Regional Plan at 4.

The VM DEIS recognizes that the alternatives in the EIS are regional guidelines that could affect future forest plans. VM DIES Summary-1, Summary-5. But the DEIS does not acknowledge the existence of the regional guide or explain the relationship between the vegetation management EIS and the regional guide. The "Use of Chemicals" was at one time included in the 15 public issues identified for regional planning in 1979. The issue was not studied because a separate EIS was prepared. Draft Regional Plan at 7.

The Forest Service has fatally mis-timed the VM EIS in relation to the forest plans. Since the VM EIS sets direction for management of competing vegetation, this direction must be incorporated into forest plans. 36 C.F.R. Section 219.8(a). Only then will an accurate and site specific estimate of economic effects be possible. Because of the mis-timing, the public will not see the effects of the VM EIS until the final forest plans are published.

3. The Vegetation Management EIS is used to resolve the air quality issue which was previously resolved in the Regional Guide.

The regional guide identified air quality as a regional issue, studied alternatives to resolve the issue, and adopted a preferred alternative. FEIS Regional Guide 2-18, 4-22. The VM DEIS apparently proposes an amendment to the regional guide because air quality and prescribed burning is a "new issue". VM DEIS I-5.

The preferred alternative in the existing regional guide calls for an increase in prescribed burning acres (FEIS Regional Guide 4-23) while the vegetation management EIS requires a 23 percent reduction in acres burned. VM DEIS IV-23. This is a significant amendment to the regional guide that will effect forest plans. The regional forester has failed to determine whether the VM EIS proposals are

## 2 - COMMENTS (LEGAL ASPECTS)

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significant amendments to the guide. 36 C.F.R. Section 219.8(f).

4. The VM DEIS does not consider how the proposed alternatives achieve Resource Planning Act goals.

The National Forest Management Act was an amendment to the Resources Planning Act (RPA). 16 U.S.C. Section 1600. Congress wanted to maintain the link between local forest plans and national objectives for resource use and development. The national objectives are reflected by specific resource targets called RPA Program goals. For example, the RPA Program goal for the timber resource is 5.45 billion board feet in region 6. Regional Guide at 3-17.

The National Forest Management Act requires that guidelines for management plans should be developed to "achieve the goals of the (RPA) Program." 16 U.S.C. Section 1604(g)(3). However, the VM DEIS does not describe how the VM DEIS alternatives will help or hinder the achievement of RPA goals.

5. The VM DEIS alternatives do not permit increases in harvest levels based on intensified management.

The NFMA requires that guidelines for forest management "permit increases in harvest levels based on intensified management practices, such as reforestation thinning, and tree improvement." 16 U.S.C. Section 1604(g)(3)(D). All three preferred alternatives reduce long run sustained yield levels. Only one alternative permits an increase in timber output.

6. The VM DEIS does not contain a "no action" alternative.

The Council on Environmental Quality (CEQ) regulations require that an EIS contain a "no action" alternative. 40 C.F.R. Section 1502.14(d). The VM DEIS does not include the correct "no action" alternative as required by NEPA and NFMA. A "no action" alternative is needed to compare the existing plan and management with the proposed management. Until the existing plans are formally amended, they must serve as the "no action" alternative representing current management. 40 C.F.R. Section 1502.14(d), 36 C.F.R. Section 219.12(f)(7).

Representing the "no action" alternative as no vegetation management is deceptive and fails to conform to

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NEPA and NFMA. The National Forests are doing vegetation management today although without herbicides. Elimination of all vegetation management does not reflect existing practice. NEPA procedures regarding the "no action" alternative were clarified by the Council on Environmental Quality (CEQ) in the "40 most asked questions about NEPA":

"The first situation might involve action such as updating a land management plan where ongoing programs initiated under existing legislation and regulations will continue even as new plans are developed. In these cases no-action is no change from current management direction or level of management intensity ... the 'no-action' alternative may be thought of in terms of continuing the present course of action until the action is changed. Consequently, projected impacts of alternative management schemes would be compared in the EIS to those impacts projected for the existing plan." 46 Fed. Reg. 18026.

In sharp contrast, the VM DEIS notes that Alternative C, the "no action" alternative, "is a dramatic departure from the manner in which the Forests have historically been managed." DEIS II-10. In Natural Resources Defense Council (NRDC), Inc. v. Hodel, 624 F. Supp. 1045, (D. Nev. 1985) aff'd 819 F.2d 927 (9th Cir. 1987). NRDC had challenged the Bureau of Land Management's failure to include no grazing as the correct no action alternative. Judge Burns rejected the argument and said, " '[n]o action' in my opinion is certainly not, in this context, a complete reversal or abolition of a historical pattern of use over 100 years old." Id. at 1054.

7. Estimates of environmental and economic effects are based on a comparison to draft forest plans not the "no action" alternative.

Besides the failure to include a "no action" alternative in the DEIS the Forest Service has also failed to make the correct comparisons to estimate economic and environmental effects. Alternative B is the reference point used to compare the preferred alternatives. Alternative B "approximates the direction presented in proposed forest plans." DEIS II-8.

#### 4 - COMMENTS (LEGAL ASPECTS)



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The proposed forest plans' have a timber allowable sale quantity (ASQ) of between 3.8 and 4.3 billion board feet per year. DEIS IV-53. Changes in timber output of the DEIS alternatives are measured from this base. However, the potential yield in the existing plans is 5.2 billion board feet per year. Therefore, the economic effects are incorrectly estimated. Both NFMA and NEPA require an accurate estimate of environmental and economic effects. 40 C.F.R. Section 1502.16, See 36 C.F.R. Section 219.12(g).

Essentially, the VM DEIS assumes the forest plan decisions are already cast in stone. The CEQ regulations state the "[e]nvironmental impact statements shall serve as the means of assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." 40 C.F.R. Section 1502.2(g). The comparisons in the VM EIS justify the forest plan decisions and minimize the effect of the vegetation management proposals on timber production.

8. Estimates of economic effects hide the immediate impact of the alternatives and focus only on the long term.

The estimate of the change in timber output and consequent changes in county receipts and jobs are based on the change in the long run sustained yield. DEIS IV-52. The long run sustained yield is the timber output that is usually not achieved for fifty years or longer. See Ochoco National Forest draft forest plan. Therefore, the Vegetation Management EIS fails to show the direct effects of the preferred alternatives on the upcoming ten year timber sale program. The CEQ regulation defines effects to include "[d]irect effects, which are caused by the action and occur at the same time and place." 40 C.F.R. Section 1508.8(a).

Also, the effect on the acreage of suitable timberland is not revealed. An example is the ninebark brush areas on the Wallowa-Whitman National Forest.

9. The range of alternatives is inadequate because the DEIS contains only one alternative that increases jobs, county income, and timber production.

Only one of the seven alternatives in the EIS has positive social and economic effects. DEIS II-23. All other alternatives harm local economies and reduce timber outputs.; The EIS must find ways to harmonize resource management on the forest. 16 U.S.C. Section 531. An EIS with alternatives heavily weighted toward one side of the development spectrum



# I/B Public Participation and Consultation

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is invalid. California v. Block, 690 F.2d 753 (9th Cir. 1982) (Invalidating an EIS for an inadequate range of wilderness alternatives).

10. The Vegetation Management DEIS fails to comply with the Multiple-Use Sustained-Yield Act.

The Multiple-Use Sustained-Yield Act defines multiple use as "making the most judicious use of the land for some or all [the] resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions." 16 U.S.C. Section 531.

The preferred alternatives will effectively limit the number of acres treated to satisfy timber demand. For example, Alternative D describes how "an additional 15,000 acres per year will be left untreated." DEIS II-43.

The Multiple-Use Sustained-Yield Act also requires "the achievement and maintenance in perpetuity of a high level" output of renewable resources. The DEIS did not consider whether the preferred alternatives will achieve this objective.

11. The DEIS fails to select a single preferred alternative. Since a single preferred alternative will not be selected until the final EIS, the DEIS does not comply with the intent of the National Environmental Policy Act (NEPA). The selection of three preferred alternatives from the seven alternatives considered in the DEIS frustrates the ability of the public to meaningfully evaluate the decision-making process of the Forest Service.

This failure to focus on a single preferred alternative also has adversely affected the comparison of alternatives within the DEIS.

The selection of three distinctly different preferred alternatives, rather than one, makes it impossible for the public to determine the direction the Forest Service is headed or to evaluate the decision-making process they used to get there. This is a violation of NEPA.

12. The DEIS does not adequately discuss the effectiveness of mitigation measures in evaluating the environmental consequences of the various alternatives. The detailed evaluation of alternatives is the heart of the environmental impact statement. The passing references to the

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effectiveness of mitigation measures in the DEIS do not fulfill the mandate of the CEQ guidelines to "vigorously explore and objectively evaluate all reasonable alternatives" and "devote substantial treatment to each alternative considered in detail." 40 C.F.R. Section 1502.14.

13. The DEIS must include an accurate, realistic assessment of the proposed program by showing forest level impacts. Forest level impacts must be displayed. The DEIS uses incorrect methodologies by using assumed broad ecotypes that only represent one-half of the regions acreage to develop some estimate of falldown in timber yields. The methodology is incorrect, misleading and does not give the public a clear picture of what specifically will happen on their local forest.

14. The range of alternatives is inadequate and will not satisfy NEPA requirements. All the environmental and social effects of all of the alternatives are negative except one. However, although alternative G shows slightly positive impacts it is compared to alternative B which is already an understatement of yields because it is based on draft forest plans which propose a 20% reduction in timber sale levels. Thus all alternatives propose negative social and economic impacts, a clear violation of NEPA. The public is left trying to choose from varying degrees of "badness" and trying to do it from a biased document. More alternatives must be added to the DEIS that are on the "positive" side.

15. The concept of "last option" is not defined in the DEIS. The public has individual definitions of what this means; it is not defined, the public is misled, in violation of NEPA.

16. The availability of pertinent data as to the individual impact from each of the nineteen Region IV National Forests is vital to a properly conducted, detailed analysis for the DEIS in accordance with NEPA. The DEIS does not address the questions:

What is the projected impact of each alternative on allowable sale quantity for your forest?  
What kind of data are projections based on?  
What is estimated margin of error?

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What are your assumptions in the analysis?  
What plants do you need vegetation  
management for?

17. The three "preferred alternatives" cannot be considered acceptable when every social and economic effect listed for the three in the Forest Service's summary on pages 12 and 13 is negative? Each DECREASES payments to local government, DECREASES personal income, DECREASES jobs, and DECREASES long-term timber production.

18. Due to the concurrent release of the Regional Vegetation Management DEIS and individual forest plans, the public cannot determine how the two documents will impact one another nor what the resulting effects will be on a specific forest or local area.

The DEIS fails to consider the impact of the several forest plans within Region VI thereby failing to use all practical means consistent with other essential considerations of National Policy to improve and coordinate federal plans, functions, programs and resources (NEPA Section 4331(b)).

19. The DEIS must provide a workable vegetation management program with adequate flexibility to deal with the tremendous differences in each of the 19 National Forests. Too many assumptions are made upon a theoretical "average forest" which cancels out the individual extremes that exist in reality. Individual impact of each alternative must be published on a forest-by-forest basis.

20. NEPA mandates that the agency must encourage and facilitate public involvement in the proposed DEIS as it affects the quality the human environment. The extended comment period (to February 15, 1988) is inadequate for such involvement.

21. The DEIS fails to adequately address its compatibility and/or conflict with the state and local land use plans and controls for the areas affected (40 C.F.R. Section 1502.16).

## CONCLUSION

The above comments generally relate to the application of the National Environmental Policy Act, Resources Planning Act, National Forest Management Act, Multiple-Use Sustained-Yield Act, and related statutes and regulations.

## 8 - COMMENTS (LEGAL ASPECTS)

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Federal agencies must prepare an environmental impact statement which considers the impact of any proposed federal action affecting quality of human and natural environment. The review must be in sufficient detail to provide the agency the basis for a well-reasoned decision to proceed with the project (considering the significant potential environmental consequences).

Based upon the foregoing comments, and Oregonians for Food and Shelter's Comments, which incorporate, by reference the comments, observations and criticisms furnished to the USFS by Northwest Forest Resource Council, Industrial Forestry Association and National Forest Products Association, the proposed VM DEIS is, from a legal aspects standpoint, inadequate.

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DATE: February 12, 1988

REQUEST FOR  
SUPPLEMENTAL ENVIRONMENTAL IMPACT STATEMENT TO  
DRAFT ENVIRONMENTAL IMPACT STATEMENT (October 1987)  
(MANAGING, COMPETING AND UNWANTED VEGETATION)  
PACIFIC NORTHWEST REGION

The Pacific Northwest Region's October 1987 Draft Environmental Impact Statement ("Managing, Competing and Unwanted Vegetation") ("VM DEIS") must be supplemented.

This request for a Supplemental EIS (SEIS) is made on the grounds and for the reasons that there are significant new circumstances and information relevant to environmental concerns bearing on the proposed DEIS; further, the purposes of the National Environmental Policy Act (NEPA) will be furthered by a SEIS.

Significant new circumstances warranting a SEIS include, but are not limited to, the following:

I.

The subject VM DEIS does not incorporate new circumstances or information raised by the nineteen respective forest plans generating within Region VI of the USDA Forest Service. The forest plans are presently in draft form. The comment period for most of the forest plans extend extensively beyond the closing of the comment period for the subject VM DEIS (February 15, 1988).



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## II.

Oregonians For Food and Shelter has proposed "B-PLUS, the Integrated Vegetation Management (IVM) Alternative" to the Forest Service as to the subject VM DEIS. (See OFS Comments).

This modification of alternative "B", objectively and comprehensively blends the best features of each of the VM DEIS alternatives. Upon adoption in an SEIS, it removes the confusion to the public of multiple (three) agency "preferred alternatives", as NEPA mandates that an EIS be succinct and direct in its draft form to avoid confusion to the public; it must provide sufficient detailed information to allow interested parties, including the public, to make a reasoned choice of the proposed alternatives.

The proposed alternative "B-PLUS ...", provided in a SEIS will accomplish NEPA's mandate.

## III.

During the comment period for the subject VM DEIS, numerous interested parties, including Oregonians for Food and Shelter, have provided detailed comments as to deficiencies, omissions, and statutory violations in the subject VM DEIS. Such critical comments, on the merits, introduce significant new circumstances and information relevant to environmental concern and bearing on the proposed EIS and its impact. These matters are of substantial consequence and must be addressed. The appropriate vehicle to so address these new circumstances, et al, is by way of a supplement to the subject VM DEIS. By this reference, this request for a SEIS incorporates the comments to the subject VM DEIS which are concurrently submitted by Oregonians for Food and Shelter.

Oregonians for Food & Shelter  
Silvicultural Technical Committee Comments on USFS Region 6

MANAGING COMPETING AND UNWANTED VEGETATION

DRAFT ENVIRONMENTAL IMPACT STATEMENT

February 15, 1988

Comments on the silvicultural portion of the DEIS were made on fundamentals of:

- . Policy - Is the DEIS consistent with individual forests and Region 6 direction?
- . Process - What was the process used to get base data from individual forests? Does base data/value agree with current knowledge?
- . Major sections of DEIS, including In Integrated Vegetation Management Policy, Risk Assessment of Alternative Methods, Competitive Species, and Productivity and Value.

Policy Direction:

There are several points that need to be made on the DEIS policy direction, from the silvicultural perspective. First, the policy direction implied on regeneration survival/mortality, value of conifer versus hardwood, cost comparisons of vegetative management methods, fire, noxious weeds, and road right-of-ways.

Finally, a detailed list of questions on silvicultural DEIS aspects is included.

The following are additional detail comments on major aspects of the DEIS:

#### POLICY

The DEIS should be evaluated for consistency with the plans of the individual National Forests and the collective Region 6 plans. An example of potential discrepancy is noted in Chapter 2. The discussion of Alternative B is cited as the reference level expected with implementation of the forestry plans (II-22). In Chapter 2 (II-42) the timber harvest level is stated "to be approximately 3.8 to 4.3 billion board feet annually." This is significantly inconsistent with Region 6 communications in January of 1988 that the Region 6 harvest level would continue to be in the 4.7 billion feet area, down from over 5 billion feet annually. With these substantial volume differences, the point is that vegetation management policy is a key element to Region 6 and individual forest productivity policy, and has to be considered in conjunction with these forest plans. Further, we suggest that the current DEIS has severe limitations and could steer the USFS vegetation management policy on a course for needless harvest reductions, greater risk, higher cost and lower public benefit.

Consistency in the NFMA process and current planning process has to be accomplished.

#### PROCESS

The DEIS has impact assumptions that are consistently different from what research and operational experience has indicated on adjoining land. Further, there is a question if the DEIS reflects what individual national forest managers perceive. The DEIS also appears to be significantly different from

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other technical vegetative management results of yield/value reductions, safety, costs, budgets (the DEIS never really considered survival/mortality impacts), and overall net public benefits. It is difficult to respond to a document where empirical results and research indicate multiple different conclusions than the DEIS. What was the process to collect input from individual forests and what review did that process receive?

Not fully understanding the process, we strongly recommend that individual national forest assumptions and impacts have to be displayed for appropriate DEIS review. An example of concern is that the vegetation management DEIS assumed that only 22 percent of the national forest land available was considered for treatment. Experience indicates that this level of treatment is extraordinarily low, considering the composition, need and the value of the resource. The scope and impacts of the DEIS can be assisted by relating the individual national forest inputs.

The OFS silvicultural technical committee attempted to follow up some of the DEIS assumptions on the Region 6 silvicultural impacts and recently found some correspondence from Region 6 to the national forests that allowed only several working days to respond to DEIS requests for silvicultural impacts. (Background information on vegetation management EIS - W. Jones, October 24, 1986 - reply due November 4, 1986.) We suggest that not only was "time response" interesting, but the questions asked were leading and not appropriate to the undertaking of a full review of what the impacts were. An example would be that the question should have been, "What are the impacts on survival, mortality, and growth and yield of vegetation competition?" rather than just a vague non-quantified question on any change in suitability

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classification. Another question should have been, "What are successful methods available to the national forests and their applicable cost to accomplish the total vegetation management task?"; not "One or two specific examples where non-chemical methods of plantation site preparation or release have met prescription objectives within acceptable cost limits." Again, what was the process used to collect DEIS base data from the individual forests?

Another question should have been oriented to the total scope of the lands that would incur vegetative management competition and how this competition would be addressed. Another basic question should have been the total impact on the budget and the availability of resources to accomplish these tasks. The DEIS comment on budget economic efficiencies (A-3) which states "cost of doing business and economic efficiency are not limitations" is startling, revealing and we suggest incorrect. Please explain why costs and economic efficiencies are not limitations.

We submit that portions of the DEIS impacts on growth/yield as stated in Appendix A-34, A-35, A-36, A-37 are substantially incorrect. The potential long term sustained yield reductions could be much greater and more costly than what is indicated, especially on A-35. Regionwide, the DEIS suggests that effective long term yield is a 2-3 percent fall down, which needs to be explained in some detail as it is different than what other experience and research has indicated. Further, the Bureau of Land Management in Oregon in December of 1987, has suggested that the loss of herbicides indicates a potential fall down is more in the 10 percent arena, even with substantial limitations that address other governmental federal environmental



considerations. Please explain the growth/yield reductions by individual forest and county.

PEER REVIEW

The DEIS process should have, at a minimum, consideration by silviculturally qualified peers, consisting of academia, agencies (suggest state and federal department of agricultures and also the Department of the Interior) and practicing silvicultural professionals.

Future action on the environmental impact statements on managing competing vegetation has to incorporate these steps to give the appropriate satisfactory public information and response. Why was qualified peer review not done in the draft DEIS?

Other response to the USFS vegetation management DEIS.

We could support an Integrated Vegetation Management Program that would incorporate all of that following criteria:

- .. Safety - with an objective and full assessment of all methods. areas) against the total need. As an example, when considering manual methods, the transportation of crews to and from the site have to be considered as an exposure to risk and, further, that it would have to consider the accident record of these activities. We suggest the DEIS is definitely lacking in this arena and the attachments of documentation on demonstrated risk performance has to be incorporated in the DEIS.

IVMP (Integrated Vegetation Management Program) would have to have mechanisms to insure that the objectives are accomplished. It is not just enough to try some exotic unproven method and assume it will work, especially on hundreds of thousands of acres. Success has to be an integral criteria of the integrated program.

Cost efficiency has to be a key element of the integrated policy. Cost, impacts and budget are obviously important; Appendix A assumptions that economic efficiency does not matter are grossly inaccurate and misleading.

The IVMP should encompass "preventive measures." Even though we should actually be doing this now, we would endorse this concept. We should point out when we discussed this with the USFS vegetation management team, there was no substantive information as to what "preventive measures" would entail. This could leave the public with the erroneous assumption that there are some yet to be developed implemented preventive measures other than those currently being done.

#### RISK ALTERNATIVES OF ALTERNATIVE METHODS OF VEGETATION MANAGEMENT CONTROL

An in-depth review of WCA (worst case analysis) of alternative methods is in order. Power and hand tools, sharp instruments, driving, exposure to fumes and a host of other related aspects of alternative methods has to be done for risk assessment and should have been done for a complete DEIS. Why was a risk assessment done for all alternative methods?

The DEIS should address all competitive species. Significant competitive species on USFS ground, like big leaf maple, extensive grass (especially

after mechanical site preparation), older ceanothus, and chinquapin are some of the species that need review in the DEIS. We submit that these are major competitive vegetation categories that are significant to regeneration, survival, growth and yield and have to be addressed. Appropriate individual national forest inputs could address this concern and need.

The DEIS should adequately review the loss of productivity and value due to vegetative competition. Appendix A-7 ignores the numerous references and empirical examples on hundreds of thousands of acres that substantiates herbicide efficacy in the Northwest. Why was qualified peer review of productivity and values not done?

The DEIS did not address in any degree the importance of regeneration survival/mortality, especially as related to grass and sprouting species (A-8). The DEIS states that "an extended rotation is the most significant impact in terms of potential harvest reductions." Again, this is a reinforcement of the lack of consideration of survival and early mortality due to vegetative competition. Some studies of Hollis Ellen (OSU, M.S. Thesis, 1969), Cole and Newton (1987) suggest different opinions. Scientific data and empirical evidence suggest the DEIS needs substantiation for its comments. Perhaps a historical review of Oregon and Washington coastal range forests in regards to the potential impacts of vegetation would assist in evaluating the results on survival, growth, and yield value of competing vegetation. There are millions of acres that suggest the DEIS is incorrect in its assessments of growth, yield and value. How was regeneration survival and mortality before "free to grow" addressed?

A-11 suggests that the lowest survival (54.3 percent to 64.7 percent) is reported on areas where competing vegetation was advanced at planting time. This ignores countless plantations, many on USFS ground, where there were essentially substantial failures (certainly below 54 percent) on numerous plantations due to grass competition, often combined with other severe elements. Vegetation control has proven to be extremely effective on grass and again the DEIS suggests impacts other than what was commonly accepted in field operations. Is A-11 an accurate portrayal of survival?

A-12 suggests that alder would improve Douglas-fir yields on alder sites because of improved tree vigor - then qualifies this when stand canopies become similar, which is a major qualification and in fact not totally accurate. They further qualify this by referencing the Miller and Murray study (1970), where 20-40 red alder per acre enhanced Douglas-fir growth. The trick is to limit the red alder to 20-40 per acre. There are literally millions of acres in the Coast Range that suggest that statements in A-12 should be rewritten to provide a more accurate description of alder competition.

A-13. A very serious omission of the DEIS is the stated reduction in yield but with no consideration for value. The suggestion is that the Walstad, et al. (1986) study should encompass also relative values of alder compared to those of release sites with conifer. There should also have been noted some other studies that were available to the DEIS such as the Toledo, Washington Highway 504 and 505 site which has another paired treated and untreated site and results which suggest the treated site had, at time of measurement, 10,754 cubic feet per acre and the untreated site had 6,680

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cubic feet per acre. The volume on the treated site is primarily Douglas-fir volume and the untreated site is essentially pure red alder volume. The real answer has to be extended further to get a net stumpage value of \$11,925 per acre versus \$1,336 per acre respectively. The Five Rivers site (in Oregon) was similar with 14,508 cubic feet per acre of Douglas-fir and 6,680 cubic feet per acre of red alder volume on the untreated site. Stumpage values were \$18,287 per acre for the treated site versus \$1,336 per acre for the untreated site. The point is that the DEIS has to also consider the value of these relative species. Further, it is disappointing that some of these studies were apparently taken out of context and others should have been included for better understanding. This will have to be corrected in the next EIS draft.

The DEIS has to have improved cost analysis for comparison of herbicides and alternative methods.

1987 herbicide costs currently being done on thousands of acres with high environmental quality control range from \$9-\$50 per acre. A weighed cost for multi-treatments on thousands of acres, again with high quality control, should be below \$50 per acre. Does the DEIS make valid comparisons of chemical and other methods of vegetation management?

The DEIS provides some credence to other brush control measures that are not proven to be effective or operational. Grazing on the west side is certainly in this category. It is limited by terrain, slash, number of animals, weather and timing, which is very critical. Another example would be that the hand treatment of brush species like ceanothus is limited to some very young stages of this species and is not assessed to be feasible on older ceanothus.



FIRE

We commend the excellent write-up on fire, as being a key tool and part of the natural environment -- it is very well done. Appropriately, the USFS should be relying on this tool. However, an estimate of the USFS burning program indicates a reduction in scope and, in fact, a current estimate of the accomplishments against target plans has been made in a range of 50 to 60 percent of what they would like to do. The USFS should have an aggressive burning policy for control of vegetative management competition, improved regeneration, and fuel management. However, the DEIS should recognize vegetative options if burning scope is reduced.

Another major element of the DEIS that should be improved is that a non-attainment of fire and fuel management target presents a much higher risk of catastrophic loss. The 1986 and 1987 fires in the Northwest which exceeded \$400,000,000 in costs and losses gives a reference for partial "value at risk." The DEIS should reflect these values over a 50 year or more period (1900 would be a good base).

ALTERNATIVE METHODS; POTENTIAL CONFLICT WITH OTHER USFS DIRECTION

The potential utilization of varied vegetation management tools could be contrary to other USFS direction. An example is mechanical site preparation, which is and should be a key tool on favorable terrain. However, some other USFS policies at this time are to avoid any increase in soil "bulk density." This direction on "bulk density" alone, which is not totally accurate, we believe, could severely limit the application of this excellent tool. We do support the use of mechanical site preparation.

NOXIOUS WEEDS ARE NOT ADEQUATELY ADDRESSED IN THE VEGETATION MANAGEMENT DEIS

Oregon State law requires the attempt to control 35 noxious weeds. Is this adequately addressed in the DEIS? What about the state of Washington?

- There are some significant changes and rewriting of the biologic methods, especially related to biologic control that should be done by experts in this area.

Road right-of-ways. Right-of-ways are another area where vegetative competition needs to be documented to assure that right of ways are maintained. They are essential for safety and to maintain road sight distance.

- Roadside fires will increase with higher fuel loading, especially with grasses and shrubs.
- Prime sources for noxious weeds.
- Vegetation can cause structural damage to the shoulders and road surfaces.
- There are also some significant risks and high cost to mechanical right of way maintenance.
- Other public agencies in the county and state road departments allocate approximately 5 percent of their maintenance budget for vegetation management. USFS spends 15-20 percent of their budget on these activities and the direction suggested in the vegetation management DEIS would increase this even more.

A more active vegetation management program that would be cost effective, safe and effective is very much in order. We would recommend peer input from state and county road departments in DEIS revision.

The following is a detailed list of questions pertaining to DEIS silvicultural aspects:

Section II - Alternative E

Pages 14 & 15

- . Why were these herbicides excluded from use?  
What is the reference to and reason for exclusion?
- . EPA says it is okay to use these chemicals.
- . Why is aerial application singled out versus ground?  
What documentation supports this claim?
- . Why is burning of treated vegetation prohibited?  
What documentation is there to support this?
- . Why can't chemicals be used in watersheds formally designated as municipal or industrial watersheds?  
What data supports this statement?

Section II - Alternative F

Pages 16 & 17

- . What data is available that supports the difference between burning untreated slash for reduced wildfire hazard versus prohibiting the burning of treated vegetation?

Section II - Biological Methods

Page 67

- . Grazing: What data/references support the conclusion that animals enhance available nitrogen on some nutrient deficient sites?

Page 68

- . Forced grazing: Indicates that it can adversely affect animal weights and marketability -- a serious problem for stockmen. Provide data and cost analysis to show real costs.

Page 69

- . What data/references support the statement that natural seedlings grow faster than planted trees?

Page 75

- . Manual Methods: Where is data to show that scalping is beneficial?
- . What data/reference supports low impact on soil surface of hand methods versus impact of chemicals?

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- . Why are there some chemicals on the list that are currently not registered for forestry use, i.e. Krenite, Simazine?  
What about new chemicals that are not on the list, i.e. Arsenal, Escort, Oust, Accord, etc.? These are very important additional chemicals in the tool box.

## Section II - Herbicide Mitigation Measures

Page 82

### #7 - Buffers

- . What data/documentation supports the width criteria for buffers around wetlands, lakes, Class I, II, III and IV streams for both aerial and ground application?
- . Why not consider the Oregon State Forest Practices Act regulations as they relate to buffers and their long track record of success?

## Section III - Vegetation

Page 23

- . Target species: What data/reference supports the statement that the most important competition are salmonberry and vine maple? What about grasses, herbaceous cover, big leaf maple, trailing blackberry, elderberry, etc.? CRAFTS says these are also major competitors.

Page 24

- . Cascade vegetation: Target species -- why were big leaf maple and grass not among the major competitive species.
- . East-Side vegetation: What data is there to support that Western Juniper is the only major species? What about grasses, manzanita and ceanothus?

## Section III - Wildlife and Wildlife Habitat

Page 34

- . Supply scientific data that western red-backed vole and northern spotted owl population levels drop dramatically as stands are converted to younger age.

## Section III - Fisheries

Page 38

- . Interaction: What documentation/scientific evidence is there to support the statement, "Vegetation management activities have the potential to affect fish habitat characteristics such as water temperatures; sediment load; turbidity; water quantity; and timing of flow." Are these effects positive or negative to fish habitat characteristics?

Section III - Land Uses

Page 40

- . What survey data is there to support the broad generalization (third paragraph at the top of the page -- generally, large, private; industrial landowners tend to emphasize uses of the environment different than those of smaller landowners)? Who was interviewed, and what type of questions were asked? Is this just someone's opinion?

Section III - Rights-Of-Way Maintenance

Page 42

- . Without the use of herbicides, what is the financial impact of right-of-way maintenance? If budgets are continually decreased for right-of-way maintenance, how do you propose for them to catch up?

Section IV - Potential Direct and Indirect Effects

Page 20

- . What references are being used when saying, "However, adverse effects on soil microorganisms have also been reported?"
- . Discussion: What references/data sources support the statement that the soil is a major receptor for herbicide applications in forestry?

Page 21 (See Alternative E&F)

- . Contradicting statement: Prohibit burning of herbicide-treated vegetation. Page IV-21 says, half life well under two months and most chemical degraded prior to burning. Therefore, why the statements in Alternative E&F if your data says no problem?

Section IV - Prescribed Burning - Discussion

Page 42

- . What data support leaving an unburned buffer along Class III streams?

Page 43

- . Peterson (1983) found sheep grazing on clearcut units on the Siuslaw National Forest led to a significant increase in fecal coliform concentrations downstream. Are downstream residents being notified of this and what are the monitoring systems? Are they the same as herbicides?



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## Section IV - Herbicides - Potential Direct and Indirect Effects

Page 43

- . First sentence, what is the significant effect on health of herbicide contamination of surface water in the forestry environment? See page IV-46, six year data say this isn't a real problem. Why bring it up?

Page 47

- . Conclusions: What data indicates that ground applied herbicides would substantially reduce the risk of chemical contamination of water?

Page 48

- . In evaluating risk of water contamination, where and what data support the relationship/correlations of number of acres treated to associated risk? Isn't the relationship of risk related to treatment applied and where the acres are located, rather than the number of acres as illustrated in the DEIS? Risk is not related to number of acres, but to treatment prescribed!

## Section IV - Cumulative and Synergistic Effects

Page 48

- . It is stated that ground water build up of herbicide residues are related to agriculture experience; then you say it is not synonymous with forestry. Why include it and confuse the issues?

## Section IV - Chemical Methods

Page 69

- . What scientific evidence/data supports the statement that chemical herbicides have the potential for direct toxic effects to wildlife? Later in the discussion you state this is not a problem.

Page 70

- . Last three paragraphs on the page -- what data/references and studies support these statements? Particularly that aerial conifer release increases browse damage?

## Section IV - Land Use - Noxious Weeds

Page 76

- . What documentation is there to support the statements: A positive side to the use of alternatives that restrict herbicides is the favorable result obtained; no degradation of scenic values from brown-out; no adverse effects on wildlife and fish, etc.?

- . Where is the documentation and scientific data to say that there is an adverse effect to start with?

#### APPENDIX A

##### Douglas-fir/Alder Analysis

###### Page 11

- . First sentence. What documentation is there that statistically shows light to be more limiting than soil moisture in this complex?

##### Step 2 Yield Estimates

###### Page 12

- . Walstad, et. al. (1986). What method was used to calculate the comparisons of commercial yield for Douglas-fir? The untreated stands didn't have any Douglas-fir volume, so how do you arrive at 46 and 62 percent reduction? Therefore, it is an all or nothing comparison, isn't it?

##### Step 3 Area Expansion

###### Page 13

- . What were the data bases that suggested a 25 percent reduction in long-term sustained yield for this complex.

##### Douglas-fir/Hemlock/Salmonberry/Herbaceous Analysis

###### Page 16

- . Why was the CRAFTS data set on herbaceous competition in salmonberry complex omitted in this section? This data suggests the need for herbaceous control for the elimination of moisture stress, when moisture was previously thought of being non-limiting.

###### Page 17

- . Why wasn't all the literature referred to as it relates to bracken fern, elderberry, and vine maple cited? What are these sources of information?

##### Yield Comparison

###### Page 17

- . What data source was used to come up with 21 percent yield reduction from the lack of managing the salmonberry complex?

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## Herbicide Efficiency

Page 17

- . Stein's data indicates little difference in survival and growth between chemical and manual. However, what are the cost differences between three manual treatments and one chemical treatment to achieve the same results?

## Ponderosa Pine/Grasses/Herbaceous Analysis

Page 18

- . Yield Effects - Explain the rationale of using simple proportions in estimating yield reductions. What survey data was used to arrive at the number of 20-30 percent of plantations will require release treatment, and the 8 percent of acres needing treatment that would not be treated in the absence of chemical release?

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- . Walstad, J. D., J. D. Brodie, B. C. McGinley and C. A. Roberts, 1986. Silvicultural Value of Chemical Brush Control in Management of Douglas-fir. Western Journal of Applied Forestry, 1:69-73.

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OTHER COMMENTS:

\* The "last option" concept in Alternative D is unworkable and totally unacceptable. This concept, conceived and supported by anti-pesticides special interest groups will:

a) artificially increase the administrative costs associated with herbicide use -- thereby reducing or eliminating the superior cost advantage herbicides currently maintain over other methods of vegetation control;

b) allow the anti-technology special interest groups to harass forest supervisors and ultimately tie their hands by forcing the courts to decide whether herbicides were used as a "last resort"; and,

c) the term "last option" or "last resort" itself is not acceptable, regardless of how it may be defined. These terms foster an even greater negative perception in the public's mind about the risks of herbicide use -- resulting in further restrictions on pesticide use in and outside of the Forest Service's vegetation management program.

\* The Forest Service should not propose an alternative which bans the use of a registered pesticide or precludes use for its intended purpose as approved by the EPA.

\* Due to concurrent release of the Regional Vegetation Management DEIS and individual forest plans, the public cannot determine how the two documents will impact one another or what the resulting effects will be on a specific forest or local area.

\* The DEIS does not adequately address other beneficial impacts of vegetation management such as noxious weed control, rights of way and roadside maintenance, wildfire control and rangeland improvement. This understates the importance of chemical control methods.

\* The selection of three distinctly different preferred alternatives, rather than one, makes it impossible for the public to determine the direction the Forest Service is headed or to evaluate the decision-making process they used to get there. This may also be in violation of NEPA intent.

\* The mitigation measures outlined in the DEIS have not been adequately evaluated as to their effectiveness in decreasing risk to humans or the environment. The term "mitigation measures"



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infers that there is an unacceptable impact on man or his environment which must be "mitigated." The Forest Service has not documented this to be the case.

\* The Multiple-Use Sustained-Yield Act requires "the achievement and maintenance in perpetuity of a high level" output of renewable resources. The DEIS does not comply with that mandate.

\* The tone and language used in the DEIS is strongly biased against herbicides. The final draft should be more carefully written to eliminate such bias and protect against creating negative public perception itself -- perpetuating perceived risk.

\* Forest acres which have been set aside for timber production should be managed for growth enhancement as well as seedling survival. Promoting growth enhancement will help ensure a reliable and adequate future timber supply from a shrinking production land base. Forest Service should strongly considers a redefinition of the multiple-use concept to take advantage of compartmentalization of certain acreage and uses. This would allow for more aggressive timber management on fewer acres.

\* The DEIS must provide a workable vegetation management program with adequate flexibility to deal with the tremendous differences in each of the 19 National Forests. Too many assumptions are made upon a theoretical "average forest" which cancels out the individual extremes that exist in reality. Individual impact of each alternative must be published on a forest-by-forest basis.

\* The DEIS should include Forest Service research and monitoring programs on a forest-by-forest basis. Documenting the effectiveness and impact of various vegetation management methods is essential for proper evaluation and long-term planning.

\* The alternative chosen should incorporate mitigation measures, such as site-specific diagnosis and analysis, to ensure that all relevant data and information are considered. Certain measures proposed in the draft, however, go well beyond the Forest Practices Act and are overly restrictive, unwarranted and in most cases unworkable.

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\* The DEIS must improve the cost analysis done on alternative methods. Accurate numbers will clearly demonstrate the cost advantage of herbicide treatments over other methods in most all head to head comparisons. The following examples of comparative treatments in a variety of locations show the dramatic economic difference (data are from actual Shiloh Forestry records):

- 1a) Umpqua National Forest, 1982  
Hand application of herbicides = \$48 to \$77 per acre
  
- 1b) Umpqua National Forest, 1984  
Manual paper mulch = \$298 per acre
  
- 2a) Santa Fe Pacific, CA 1985  
Control of grasses & forbes  
Ground applied herbicides = \$48.50 per acre
  
- 2b) Southern Pacific, CA 1985  
Control of grasses & forbes  
Paper mulching = \$220.00 per acre

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OTHER COMMENTS: FROM A FRIEND OF OFS AND A FRIEND  
OF THE FOREST SERVICE.

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- Page S-8 - Prevention is an integral part of Integrated Pest Management, a USDA policy. However, this technique is highlighted only in Alternative D. Prevention should be included in all alternatives except Alternative C. Preventive methods are not proven or even available for all situations or vegetative types. Therefore, dependence on this approach will result in significantly reduced outputs and substantially increased costs.
- Page S-8 - Last Paragraph - "The implementation of this Alternative will involve . . . . ., monitoring of sites, and frequent evaluations of conditions and practices." This is the objective of making a site-specific environmental analysis. All other alternatives except Alternative C should also include early and frequent evaluations.
- Page S-9 - Paragraph 2 - A statement is made about residue utilization as if it would be considered under only Alternative F. However, we believe that the Forest Service would seek this approach wherever feasible regardless of alternative.
- Pages S-10 and 11 - Figure S-3 - We were led to believe that except for Alternative C, the size of the annual program would be similar. Alternative D's program is from 168,000 to 199,000 acres less than that for Alternatives A, B, E, F and G. We suspect that the difference is in areas where prevention is practiced or in areas where "conclusive evidence" regarding significant damage or growth loss is lacking. If it is the former, then the acres should be included in the total column in this table. If it is the latter, then the acres should be added to the total column and the "receiving no treatment" column. In the latter case, the negative figures for LTSY, PNW and Jobs would be much greater than shown because a large area of productive land will not receive treatment.
- Pages S-12 and 13 - Figure S-4 - The unit of measure for treatment effectiveness is "quality of tree establishment and early growth." This approach is typical of the analysis throughout the DEIS. Other uses of vegetation management such as noxious weed control, rights-of-way maintenance and range rehabilitation have been ignored.
- Page S-15 - Paragraph 2 - What is a project? Is it an individual job on a Ranger District; the total annual vegetation management program on a District or Forest?
- Page S-16 - Paragraph 2 - This section says that downstream water users will be notified of planned herbicide use. We recommend that Oregon and Washington State Forest Practice Act Regulations be used to determine maximum distance from the application site requiring notification.
- Pages S-18 and 19 - We could find no discussion in the DEIS about the significance of human health risks of the various alternatives nor a discussion on perceived vs. actual risk. Discussions of this sort would help the public determine whether the risk is cause for concern, and if it is real or imagined.

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Page I-6 - Under the noxious weed control subtitle, include "to protect crops, Humans, livestock, and land." Herbicides have been used in the past to kill poison oak and water hemlock to protect humans.

Page I-11 - Paragraph 5 - FSM 2150 discusses the safe, judicious, and effective use of chemical and biological pesticides. Why not include this statement in the first sentence of this paragraph instead of the more limiting one that you have used?

Page I-15 - Paragraph 4 - The discussion on documenting an environmental analysis is misleading. The test that a program or project must be subjected to is whether it is "a major Federal action significantly affecting the quality of the human environment." If it is, then an EIS is prepared. If not, an environmental assessment report is prepared. We suspect that the Forest Service prepared an EIS for this Program because the use of herbicides is controversial and, therefore, is liable to end up in court. An EIS seems to be easier to defend in court than an EA. If this is the case, then this section should be changed. Otherwise, the public will be expecting an EIS for every program like this. We hope that this is not your approach.

Page I-17 - Paragraph 5 - No mention is made of the "tiering" concept. Since EIS's cost from \$50,000 to over \$100,000 each, we hope that the Forest Service will tier each Forest's document to this EIS in the form of an environmental assessment as it has in the past. A forest by forest EIS would be a waste of the taxpayers money and would not lead to a better decision than could be obtained from the preparation of an EA.

Pages II-4 and 5 - Figure II-2 - The terms used to differentiate "time for action" between alternatives in this table are unclear and probably only distinguishable in the minds of the I.D. Team members. We think that the differences, as described, are slight between alternatives.

Page II-5 - We could find no definition for "last option." This appears to be a key element in Alternative D, and, therefore, needs to be defined. We think that this means that no herbicides will be used as long as another non-herbicidal method exists regardless of cost, safety, efficacy and utility. This is one reason why we cannot support Alternative D.

Page II-9 - A statement is made that "opportunities to reduce the use of herbicides will be sought." Upon what criteria will this be based? If herbicides are cheaper to use, more efficacious and safer, will you still pursue reducing herbicide use? Couldn't you also seek the reduction in use of other tools such as fire, cats, chainsaws, etc.? Why have you centered only on herbicides?

Pages II-12 and 13 - Alternative D emphasizes prevention as though techniques have already been tested and shown efficacious for most vegetative types and situations in the Region. We don't believe that this is true nor does the supporting information in the DEIS and Appendix show otherwise. Prevention sounds good and should be utilized where feasible and efficacious. However, we believe that the Region has significantly overstated the State-of-the-Art for this technique. Therefore, we think that the outputs and effects of implementing this Alternative are greatly exaggerated.



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- Page II-19 - It would seem that the decision on whether to increase commodity production through such things as brush field conversion should more appropriately be addressed in the individual Forest Plans and not in this DEIS. A better range of alternatives would result from having an alternative that emphasizes the use of herbicides, since Alternative A excludes their use.
- Page II-24 - Table II-1 - Some area especially in Southwestern Oregon was not treated since the injunction because of the constraint on herbicide use. How many of the acres in this table scheduled for herbicide treatment are backlog acres? Will all of the backlog acres be treated during the first year that herbicides are available?
- Pages II-24 and 25 - Is the risk and environmental effects information listed in this chapter with or without the mitigating measures listed on pages 63-84? If the data was analyzed without the mitigating measures, wouldn't making the analysis with the measures in tact be more realistic, since you are requiring all of these?
- Pages II-25-28 - What do these risk indices mean in terms of increased cancers or accidents per million humans? The indices by themselves are not too useful to us, and we doubt that they will mean much to the decisionmaker.
- Pages II-28 and 29 - We doubt that public participation will be any earlier or greater in Alternative D versus any of the other alternatives that utilize herbicides and fire. Most of the public interest centers on the use of these two tools. Therefore, it is conceivable that public involvement will be greater in Alternatives B and G than in any other of the alternatives.
- Pages II-29 and 30 - You should point out here that the reductions in jobs listed in Table II-4 are in addition to significant reductions made in the land and resource management plans. The same statement is true for changes in personal income in Table II-5 and annual payments to local governments in Table II-6.
- Page II-32 - Last Paragraph - ASQ will be from 3.8 to 4.3 billion board feet annually for Alternative B. It should be pointed out that ASQ has averaged 4.8 to 5.2 bbft over the past 5 years.
- Page II-33 - Table II-7 - It would seem that the costs for Alternative E would be much higher considering the significant increase in ground herbicide application.
- Page II-35 - Table II-9 - How can the annual budget be reduced for Alternative D, if so much additional evaluation and planning is needed for this Alternative?
- Page II-37 - II-11 - What do differences in suspended particulates mean in terms of human health? Where will the burning take place? If most of the burning will occur in areas devoid of population, will smoke really be of much health risk to humans?



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Page II-41 - Table II-13 - How were the figures for relative effectiveness of vegetation management derived? The effectiveness figure for Alternative D seems to be much too high. This Alternative emphasizes preventive techniques and increases biological control. The efficacy data for these methods are either lacking or minimal. Therefore, we question whether most of these techniques will be operational in the next 3-5 years or longer.

Pages II-42-45 - To be meaningful, differences in ASQ, PNW, Jobs and Payments to counties should be listed by county and/or National Forest. This would help the public determine whether the differences between alternatives are really "modest" as you have indicated. We know that differences will be most significant in areas like Southwest Oregon.

Page II-43 - This section includes a new explanation of Alternative D. "All methods are available under this Alternative, although added caution and reduced tolerance for data gaps and uncertainty will translate into reduced program accomplishment in the short term." This description should be included on page 12 under "purpose and theme" and not here. Does this mean that no action will be taken unless you have all of the information on potential for tree survival or growth loss or efficacy of a treatment? If so, some forms of prevention or biological control will not be used except on an experimental basis for some time until they are proven efficacious. As a result, PNW, ASQ, jobs and payments to counties should be more significantly reduced over the next 3-5 years or longer under Alternative D than you have indicated. Discussion about Alternative D indicates that a great deal of research and development work will occur over the next 5-10 years. What is the cost of this work and has this cost been included in the analysis? Who will be doing this work?

Page II-60 - Downstream water monitoring is common only where aerial application of herbicides occurs not where ground application occurs.

Page II-65 - Item 4 - Why not evaluate positive as well as adverse effects of vegetation management methods?

Page II-65 - Item 5 - The same comment pertains here that we made for page 15. What is a project? Will you have an EA and set of plans for each project?

Pages II-67-70 - Words such as "more research is needed," "being explored," "may become," and "in the experimental stage" lead us to think that most biological methods have not been proven efficacious on an operational basis. This is especially interesting in light of the fact that use of biological methods in Alternative D will be increased over 400% from that in Alternative B and prevention is stressed in Alternative D. The usual scientific approach to testing methods is to make a laboratory experiment followed by a small-scale field experiment and a larger-scale pilot study or administrative study. If results are positive from all of these steps, then you can proceed to operational use. It sounds to us like many of the biological and preventive methods of vegetation management are still in the experimental stage.

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Page II-70 - Some additional mitigation measures are:

1. Monitor downstream water for biological contamination where livestock are used.
2. Seed will be checked for purity before use.

Page II-77 - Last Paragraph - Are mechanical methods, tools and techniques for rights-of-way maintenance, noxious weed control, wildlife habitat improvement, and range revegetation also discussed in FSH 2409.26b and 2409.26c? If not, where are they covered?

Page II-79 - Paragraph 1 - This paragraph mentions a section in the Appendix that discusses herbicide use and efficacy. That section in Appendix C is well done. It is interesting to note that no similar sections could be found that discuss use and efficacy of biological, prescribed burning, manual and mechanical methods except for that on pages 67-78. No literature citations are noted to substantiate the efficacy of these other methods as they were in Appendix C for herbicides. Apparently, we are expected to believe the information on these other methods without substantiation. Why isn't there a use and efficacy section with literature citations for these other methods?

Page II-80 - Paragraph 3 - What is "environmental movement?"

Page II-81 - Paragraph 2 - Ground application of herbicides also increases the perceived and perhaps real risk to the workers.

Page II-81 - Item 1 - How far downstream from the point of application will persons be notified? We suggest that you use the requirements in the Oregon and Washington State Forest Practice Act regulations as your standard.

Page II-82 - Item 7 - We are concerned about the buffer strip widths in this section. As you may know, spray drift is related to:

1. volatility of spray formulation
2. droplet size
3. speed of aircraft
4. height of aircraft above target
5. wind speed and direction at time of application
6. steepness of slope of target area
7. temperature and humidity at time of application

The purpose of the buffer strip is to minimize the amount of spray reaching open water. The on-the-ground Forest Service specialist should be the best judge of appropriate buffer strip width. In some cases, 50 feet will be ample and in others 100 feet won't be enough. The on-the-ground specialist needs the flexibility to tailor the buffer strip to the on-the-ground situation. For this reason, we recommend that the buffer strip widths in the Oregon and Washington State Forest Practices Act regulations be used as minimums and allow the on-the-ground specialist the latitude to alter the minimums as needed. Also

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the results of water monitoring on pages IV-46-47 indicate that buffer strip widths used prior to the injunction were adequate.

Page II-84 - Item 18 - The pesticide applicator licensing and training program is used to insure that applicators have a basic knowledge of pesticide use including safety. It is not meant as a quality control measure. Spray assessment card data, water monitoring results, and post-spray evaluation surveys should be used to assess quality control.

Page III-31 - Last Paragraph - Disturbances also result from insect and disease epidemics.

Pages III-42 and 43 - This section on Rights-of-Way maintenance is excellent and helps identify the magnitude of the program. It also indicates that around 30 percent of the open-to-public roads have not been maintained to standard since the loss of herbicides. This section also states that the Regional road maintenance budget has decreased with a corresponding increase in backlog work. We do not believe that you have adequately discussed the magnitude of this important program in other parts of the DEIS. To our knowledge, you did not consider this program when you made the benefit/cost analysis. The B/C analysis was run on the assumption that cost was not a factor. The example of what has happened to the road maintenance budget shows the fallacy of this assumption. Is there any backlog in the highways, utility corridors and railroads program resulting from the lack of herbicide availability? If so, please list it in this section.

Page III-47 - Of the 40.6 thousand acres sprayed annually with herbicides prior to the injunction, how many acres were treated by aerial methods and how many by ground methods?

Page IV-10 - Paragraph 2 - The implication in the final sentence of this paragraph is that data on the actual risks from all herbicides is incomplete and unavailable. The Forest Service has spent some \$250,000 for the Quantitative Risk Assessment in Appendix D and an unknown, additional amount on the Qualitative Risk Assessment in Appendix H. The Quantitative Risk Assessment is a state-of-the-art work. How much additional public funds must you spend before you will have confidence in these risk data? Surely the track record for herbicides indicates their continued safety if used judiciously and according to label.

Page IV-48 - Paragraph 6 - A very significant statement is made here that helps to put herbicide use and potential risk into perspective. We believe that this statement needs to be included in the summary, decision notice and in a more visible way in Chapter II. The statement is, "Yearly, less than 0.2 percent of National Forest System lands would receive application of herbicides under any of the alternatives. In those alternatives permitting aerial application, less than half of those acres would be aerially sprayed."

Page IV-54 - Alternative D - This section discusses the reason for not treating 26 percent of the prescriptions resulting in 15,000 acres per year more in the untreated category than for Alternative B. Nowhere, though, is it explained why Alternative D's total annual program is 380,500 acres compared with 548,600 to 579,600 for the other action alternatives. We suspect that this sizeable decrease in program acres is due to the



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prevention emphasis of this Alternative. However, because of "reduced tolerance for data gaps and uncertainty," prevention practices will not be instituted until gaps and uncertainty are solved for this technique. The result will be a much more significant reduction in LTSY, PNW, payments to counties and jobs than projected. A 168,000 to 199,000 acre difference in initial program size will have a tremendous impact on outputs.

Page IV-55 - Last Paragraph - The decision on allocations for marginally suitable land is more appropriately addressed in the individual forest plans.

Page IV-56 - Paragraph 1 - On a subregional or forest basis, the differences in timber yields between alternatives may be quite significant. This is why a table showing LTSY, PNW, jobs and payments to counties is needed by county and forest. Also, draft forest plans indicate a reduction in yields or harvest volume from 600 million to 1 billion board feet annually. The differences projected in this DEIS are in addition to the reductions in the forest plans.

Pages IV-71-75 - Have results of stream monitoring on an operational herbicide project ever found definite displacement or mortality of aquatic insects or fish? Why not include the results of past operational monitoring in this section?

Pages IV-119 and 120 - Did the discussion on human health risks take into account the required mitigation measures? If not, what would be the estimate of human health risk considering the full use of the mitigation measures?

Page IV-122 - Paragraph 4 - An indication is given of the upper estimate of risk of cancer from fire smoke. We believe that it would be beneficial to include a similar estimate for herbicides.

#### APPENDIX

Page A-2 - Paragraph 1 - Are the 8 million acres that will be managed for "full timber yields" those acres that were designated as suitable and capable acres in the draft forest plans? What about the remaining 16.5 million acres managed by the Forest Service in the Region? Will any vegetation management activities be carried out on these acres? Will any of these acres produce merchant ble timber? It seems to us that by analyzing timber growth and yield on only 8 million acres (actually 4.4 million acres--see page A-35), you have significantly underestimated the value of timber-related vegetation management activities as a whole and differences between alternatives specifically.

Page A-7 - Item 2 - According to this, "only published information and data . . . . will be utilized." If this is so, how did you analyze the effects of using preventive techniques and biological methods on timber growth and yield when little, if any, published information is available?

Page A-35 - Paragraph 2 - The long term yield falldown is calculated to be 2½ to 3 percent Regionwide. Again this analysis looks at yield effects on only 55% or 4.4 million acres of "full timber yield" acres and . . . .

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does not consider yields on any of the 16.5 million acres not classified as "full timber yield" acres. Among other things, you also assume that you will receive the additional money to use non-herbicidal methods and that reforestation will be timely. It would seem that this analysis would be more accurate if you looked at the benefits of vegetation management on all acres where timber yield is expected rather than on a small proportion of this. Also, it would be valuable to display the annual cost of timber-related vegetation management activities by alternative..

Page A-41 - Alternative G - What is the "cultural program." This term is not defined in the glossary and is mentioned here for the first time.

Page B-10 - Paragraph 3 - The only outputs used in the economic efficiency analysis were timber and domestic livestock grazing. Rights-of-way maintenance, facilities maintenance, wildlife habitat improvement and recreation maintenance programs benefit far more than these two outputs. The tendency in the entire DEIS seems to be that if it is not timber- or range-related, it is unimportant. The analysis would be stronger, if you would drop this bias. The magnitude of the vegetation management program for the Region would also be better displayed.

Pages E-15 and 16 - Two statements in this section bear repeating:

1. "As with all methods, increased use of herbicides in the appropriate site conditions and time will improve tree numbers and vigor in newly established stands."
2. "Alternatives with large herbicide release programs will result in improved growth and vigor of many managed stands."

We agree with these statements. Why are differences in timber yields not greater between alternatives that have the greatest amount of herbicide use and those that minimize use? It is interesting to note here that two Westside Forests indicate that they do not need herbicides for site preparation and release, even though they have major timber program and brush problems.

Page E-17 - Last Paragraph - How long will the delay be until enough information is available to provide the "conclusive evidence" required under Alternative D? What figure did you use for the yield analysis in Appendix A?

Page E-18 - If an alternative is chosen that includes herbicide use, will the backlog acres be treated during the first year or over a period of years? How many of these acres will be treated in Alternatives B, D, E, F and G? Will the herbicidal treatment of these areas be more costly and less effective because of the delay in treatment caused by the injunction against the use of herbicides?



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ATTACHMENTS

- 1) OFS "B-Plus" Alternative Response Form
- 2) Mullison, W.R., Sweet, R.D., and Davis, D.E., 1987  
Human Exposure to 2,4-D.  
Report, publication ?
- 3) Letter, 2-9-88. Gary Larsen to Terry Witt.  
Cover letter with first five toxicology peer reviews.
- 4) Dost, F.N., 1987.  
Scientific Review of Health Impacts Sections of Draft  
Environmental Impact Statement
- 5) Letter 10-24-86. W.L. Jones to Forest Supervisors  
Re: Background Information Request for VMDEIS

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the importance of timber production to the economic stability of this region could well be a devastating depression. Under such times of economic hardship, the only people left to enjoy the scenic and recreational benefits of our area's national forests would be vacationers from outside of Region 6.

As you know, OFS has taken an active role in this DEIS process. It has done so in three related ways. First, OFS personnel and members participated during the input and drafting phase. Unfortunately, many feel the resulting DEIS does not reflect the thousands of man-hours which were devoted to scientific input and data review.

Second, OFS continued its active role during the public comment period, informing interested groups and individuals about this important policy-setting document. This was accomplished through personal speaking engagements and the wide distribution of a four page response form (sample attached). OFS stimulated many to become better informed, to get involved, and to make their opinions heard. OFS staff and members also attended many of the individual national forest public information meetings throughout the Region to provide input and engage in meaningful dialogues. Likewise, OFS staff has maintained close communications with your regional staff, providing input and assistance whenever possible.

The third role OFS has taken in this process is to facilitate a review of the DEIS in four specific areas: legal aspects, silvicultural/technical comments, economics, and toxicological and risk assessments. A separate group was established to review each subject area, make appropriate recommendations, and to compile relevant comments for inclusion in the OFS response document.

The OFS comments are organized into four sections corresponding to each review group subject. We believe that our comments and suggestion are substantial and will assist you in developing a responsible course of action and final decision alike.

The following points summarize the OFS position regarding the Vegetation Management DEIS:

- o GENERAL DOCUMENT - OFS recognizes the monumental effort put forth by the Forest Service in preparing this DEIS. However, we believe the document is overly long, extremely anti-herbicide biased, and fails to communicate an accurate and understandable overview of vegetation management issues to the public. Unbiased, simplification is needed.
- o ECONOMICS - The social and economic impact analysis of DEIS alternatives is inadequate, and lacks specific data on a forest-by-forest basis needed to make an informed decision. More accurate cost - benefit comparisons are needed, and

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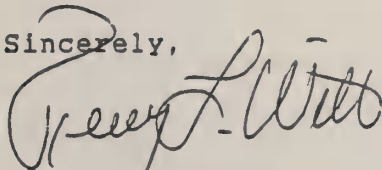
modeling assumptions used must be substantiated or changed.

- o TOXICOLOGY/RISK - The assessments overestimate toxicity, the potential for exposure and the resulting risks of using herbicides. Since no risks were determined to be unacceptable, "perception of risk" is used to justify alternative methods. Inaccuracies and inconsistencies must be corrected.
- o SILVICULTURE - The vegetation management practices outlined in most alternatives indiscriminately limit the use of herbicides and arbitrarily establish overly restrictive and unworkable mitigation measures. Several alternatives are based on unproven or non-existent technology. The net result is inefficient and costly vegetation management with substantial negative impact on future timber production.
- o ALTERNATIVES - The range of alternatives presented is overly narrow, with most all showing negative impacts. Alternatives A, C, D, E and F are in conflict with forest plan assumption that "all tools are readily available." OFS supports the modified version of Alternative B known as "B-PLUS" -- a goal-based, Integrated Vegetation Management approach using site specific prescriptions and all available tools.  
Note: OFS cannot support and will oppose any Alternative which indiscriminately restricts a given tool or technique.
- o LEGAL - OFS believes that the Vegetation Management DEIS is inadequate from a legal aspects standpoint. We believe that a Supplement to the DEIS should be prepared to correct the deficiencies and create a legally and scientifically defensible Final EIS and Record of Decision.

Please contact me if OFS can be of any assistance or if you would like to pursue further discussion on any of the points we have made. OFS welcomes continued participation in the EIS process. Also, please keep us informed on your deliberations, needs and progress as you formulate your plans and move forward toward a final decision.

Thank you for the opportunity to comment on your Vegetation Management DEIS.

Sincerely,



Terry L. Witt  
Executive Director  
Oregonians for Food and Shelter

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OREGONIANS FOR FOOD AND SHELTER  
COMMENTS ON  
"MANAGING COMPETING AND UNWANTED VEGETATION"  
DRAFT ENVIRONMENTAL IMPACT STATEMENT (October 1987)  
USDA FOREST SERVICE, PACIFIC NORTHWEST REGION

February 15, 1988

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ECONOMIC ASPECTS: COMMENTS, QUESTIONS AND RECOMMENDATIONS

The seven public issues listed as the most important in shaping the Draft Environmental Impact Statement are: Human Health, Public Participation, Social and Economic Effects, Cost and Benefit Analysis, Environmental Effects, Effectiveness of Techniques and Interagency Coordination. Note that two of the seven are economic issues. The DEIS describes the importance of these economic issues as follows:

SOCIAL AND ECONOMIC EFFECTS -- "Vegetation management activities have direct effects on employment and the quality of community life. The vegetation management program influences how much timber the Region can grow and harvest. The quality of grazing, water, recreation, and wildlife habitat may also be affected. These Forest activities support jobs directly and indirectly in many sectors of the economy. The alternatives will have economic effects, along with effects on the well-being of communities."

COST AND BENEFIT ANALYSIS -- "National Forests offer a wide range of goods and services. Some of those goods and services are sold or leased; other are provided at no fee. It also takes money, people, and resources to manage the Forests. The concern in this issue is that money and resources be wisely managed and put to the most effective and most beneficial use."

Oregon Governor Neil Goldschmidt agrees with the importance of community well-being. At the Community Stability Conference in November 1987, the Governor put the issue in human terms. "What we hear in the mill towns and other communities dependent on federal timber for their manufacturing jobs is not just about timber on the forests. These folks want their towns to be thriving over the long run. They want their kids to come back and raise families. They want stability. They definitely do not want another recession like the one they're just emerging from... What we are looking for in the forest plans...are land management decisions that look at all our forest resources and respond to our sense of what we want our communities to be like in the years to come."

In the November 1987 issue of FOREST LIFE magazine commissioners from Douglas County, Oregon put real numbers to the dollar impact of timber on local economics. "Over the ten-year period from 1976 through 1985, we took in \$97.9 million in national forest (Forest Service) timber receipts and another \$196.9 million in O&C (BLM) receipts - about \$295 million in total. This represented 63% of the total amount of revenue needed to fund county government for the ten-year period."



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The commissioners continued, "By law 75% of all national forest timber receipts go directly into the county road fund. The remaining 25% goes directly into the county school fund... O&C timber harvest revenues flow directly into the county's general fund." Without timber receipts as a source of revenue, "We would have to ask voters for a tax levy. Frankly, we don't think they would approve it. Most probably couldn't afford to make up the difference. Property taxes on a home assessed at \$65,000 would increase by 67% - over \$800 per year. One thing is certain. Without timber receipts, there would be no money for education, road construction and maintenance or water impoundments. We would be down to bare bones - police and fire protection!"

The earlier statements quoted regarding the two economic issues of high public importance appeared on the fourth page of the Summary, the very beginning of the entire DEIS document. They would lead one to believe that the authors of the draft agreed with the significance of economics in the selection process. Unfortunately, these priority issues receive little attention throughout the remainder of the DEIS and subsequent analyses.

From an economic standpoint, OFS reviewers found the Vegetation Management DEIS unclear at best, and in many instances highly misleading. For example, when the table on page B-28 of the Appendices, "Economic Criteria Response to Changes in Allowable Sale Quantity Effects," is described as "incomprehensible" by a forest economist, what chance does the lay public have of understanding these economic impacts? It is clear that the authors need to more clearly explain their analysis and conclusions in terms of economics and economic efficiency for the general public as well as for those who thought they understood forest economics.

The numerous points listed below are many of the major economic concerns identified in the DEIS. A more detailed discussion of each will follow the concern listed in bold-faced type:

- 1) **LTSY CALCULATIONS ARE BASED ON 100 YEAR TIME FRAME, WHEREAS THE FOREST PLAN DATA AND ANALYSES USE A 150 YEAR PROJECTED PERIOD**

On most forests the LTSY at 100 years is the same or close to the LTSY calculated at 150 years. This calculation is simply the summation of the timber yield table volumes times the acreage base utilized, depending on the prescriptions used in that alternative. In most instances the forest inventory structure is such that the component of acres intensely managed will have the same inventory structure at 100 years as it will in 150 years. However, on some forests, where there is a deficit inventory situation and the forest harvests less than the LTSY until the

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inventory builds up to permit a higher LTSY, the LTSY is lower if calculated at age 100 than 150 years.

Frequently, old growth "surplus" forests (those with more inventory volume than needed for a non-declining even flow level) have been changed into a "deficit" inventory condition because of the new planning assumptions. Significant reductions in land base and yields can cause a forest to go deficit from a surplus condition, and this has occurred in the NFMA plans. By simply using the draft forest plan analysis (unpublished at the time of the writing of the Veg. Management DEIS) and assuming the LTSY at 100 years equals that at 150 years, and incorporating all of the potential flaws from the forest plans (such as MMR's), the analysis probably understates the potential magnitude of a loss of herbicides and other vegetation management tools.

The Vegetation Management team should have thoroughly reviewed the analyses and assumptions contained and used in each draft forest plan instead of utilizing some of the forest data Carte Blanche. Consequently, the public and OFS cannot place any reliability on the estimates of yield falldown as portrayed in the Vegetation Management DEIS.

Additionally, the timber yield falldowns as shown on a percentage acreage basis are probably understated. Full timber yields were taken from each forest's FORPLAN yield files and assumed to be full yields on an acre basis. However, the forest level yields already have been reduced from a full yield level because of assumptions for "holes" in the stands, roads, breakage and defect, and a variety of other assumptions that vary by forest. On average, these assumptions reduce the maximum timber yields from 10 to 20%. Thus, depending on the forest or region, the estimated falldown should be increased by 10-20% by lack of vegetation manipulation.

## 2) USE OF THE FOREST PLANS AS A BASIS FOR ESTIMATING IMPACTS

NEPA defines a "no action" alternative as one of two situations, either a project or continuing with an existing program while a new proposal is being prepared. As defined in 36 CFR part 1500-1508 Fed. RReg. Vol. 46 No. 55, 3/23/1981 "Forty Most Asked Questions..." Question 3A.

"The first situation might involve an action such as updating a land management plan where ongoing programs initiated under existing legislation and regulation will continue, even as new plans are developed. In these cases "no action" is "no change" from current management direction or level of management intensity... Therefore, the "no action" alternative may be thought of as continuing with the present course of action until

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that action is changed. Consequently, projected impacts of alternative management schemes would be compared in the EIS to those impacts projected for the existing plan...

"This analysis provides a benchmark, enabling decisionmakers to compare the magnitude of environmental effects of the action alternatives."

The Vegetation Management DEIS utilizes Alternative B as the reference or "no action" alternative to which other alternatives are compared. The definition of Alternative B is the timber harvest (sell level) expected following implementation of the draft forest plans, NOT the plans that are currently in existence that the forests are operating under today. Alternative B assumes a sell level between 3.8 and 4.3 billion board feet of Allowable Sale Quantity, NOT the 5.097 billion board feet potential yield the forests in Region 6 are operating on today. As such, Alternative B assumes a 20-25 percent reduction from today's actual sell levels. Thus ALL OF THE POTENTIAL IMPACTS of the alternatives in terms of jobs, harvest levels, and economics ARE UNDERSTATED BY AT LEAST 20-25 PERCENT!

Using the draft forest plans as a basis, makes a mockery of NEPA. In court opinion after court opinion, the cardinal sin of an agency is to make a decision and then issue an EIS. That is what has happened here. The Vegetation Management DEIS states that "following implementation" of the forest plans, the sell level will be 3.8 - 4.3 BBF. This is stated in the DEIS which went to the printer months before the draft forest plans were even released for public review and comment. It is always expected that draft plans will change between draft and final as a result of changing conditions and public comment. It appears in this case that a final decision on draft forest plans HAS ALREADY BEEN MADE through the OFS Vegetation Management DEIS. Thus with no change in the forest plans stated as possible, there is no need to provide thoughtful review and comment to the forest plans. This simply makes a mockery of the NEPA process and public input.

Another problem in using the forest plans as a basis, is that the forest plans understate the potential productivity of each forest through a variety of potentially illegal ways, the most prominent one being the setting of Minimum Management Requirements (MMR's). In this process, the Forest Service arbitrarily allocated forest lands to non-timber uses first before other allocations such as timber were made. Then asks the public to only comment on the non-MMR allocations, stating that they were required by regulation to do this. This violates the National Environmental Policy Act (NEPA), the Multiple Use Sustained Yield Act (MUSY), the Administrative Procedures Act (APA), and probably others. Although a lawsuit has not been filed yet on this issue, it is likely that a challenge to a forest plan will be successful. If



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that occurs, then the Vegetation Management DEIS will be at risk because it is built fully upon the forest plan data and analyses which would likely be flawed as well.

In terms of economics, the forest plans used stumpage values and costs which are years old, are incompatible with each other and bear little relationship to values and cost today. The Vegetation Management team simply used the forests' costs and values and unless verified by the Forest Service, we cannot find credibility with the net value calculations in the DEIS. Additionally, each forest calculated its release and restocking costs differently, some including overhead and some not. These costs ranged from \$200 to \$800 per acre on various forests and they are probably incompatible with each other. The Vegetation Management team used all the forest data and yet they are unable to tell the public if they are consistent across the region or not. All costs and values should represent current date figures and they must be consistently constructed for the regional analysis in the Vegetation Management DEIS to be accurate.

3) RELATIONSHIP OF MANAGEMENT COSTS AND VALUES TO LTSY

In the forest planning process, timberland is determined to be tentatively suitable for timber management if it passes two physical screens. First, that the land can be regenerated in five years, and second, that no irreversible soil or resource damage will occur. Then allocations are made for other resources (including MMR's which are probably illegal) and a FORPLAN run is made. If suitable timberland is not needed to meet the objectives of the alternative, then it is declared not necessary for timber management and added back into the unsuited base. The industry already has major problems with most forests' determination of physical suitability. And the forest plans now propose about an additional 10% reduction in suitable lands. The industry in most cases does not support these reductions since, in general, the calls were not field verified, but were made from the office. Our position is that the lands should be "innocent until proven guilty." In other words, these lands should be retained in the suitable land base until field verification shows otherwise.

The costs and values used in FORPLAN influences the total amount of land allocated to timber management. In areas where assumed costs are high and stumpage values relatively low, lands are kicked out of solution as not being "cost efficient." Of course this has a direct impact on LTSY as there are fewer acres and less intense management in the solution. Since industry has not agreed with the Forest Service's development of costs and values in the forest plans, we cannot support their use in the Vegetation Management DEIS. We believe that the costs are probably overstated and stumpage values are understated in the

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plans. However, until the Vegetation Management team evaluates the validity of those costs and values and determines if they are still accurate today, OFS cannot buy off on their use.

## 4) ECONOMIC ASSUMPTIONS

Page A-3, #1: Cost of doing business and economic efficiencies ARE limitations to Forest Service programs. Appropriations are not limitless. The Forest Service therefore must decide, using some consistent criteria, whether spraying 500 acres with herbicides once at \$50/acre is more efficient than manually releasing the same 500 acres at \$300/acre two times. Congressional deliberations always center on efficiencies of programs and are a major criteria for the Forest Service to allocate scarce funds. If budget is not a constraint nor carefully administered, then the Appropriations Committee should look seriously at reducing the total Forest Service budget. To simply dismiss this fact as an assumption in the Vegetation Management DEIS is unacceptable. Budget limitations MUST BE ADDRESSED.

Page A-4, #3: It is again unreasonable to assume substitutability of site prep and release. These management actions are used for different biological reasons, each having different results and costs. These should have been addressed in the DEIS and not assumed away. The use of site prep and/or release are determinations that should be made in the field.

Page B-2: Non market values really have little place in this analysis. They were questionably developed by the Forest Service and are frequently called "Funny Money." By including them in the analysis, the analysis is just muddled and more realistic monetary tradeoffs become confused. The Forest Service simply needs to acknowledge that these values exist but not include them in the analysis.

A 4% discount rate was used in forest planning in driving the FORPLAN model. The 7 1/8% analysis referred to is simple rediscounting a 4% solution. The analysis should have been done at the 7 1/8% rate to determine the sensitivity of the solution to differing discount rates. This is a flaw that needs correcting not only in the Vegetation Management DEIS, but in the Forest Plans as well.

We question why the analysis period used was only 100 years when forest plans use 150 years or roughly two rotations. We understand that the electronic spreadsheet was limiting in size, but one cannot assume that resource outputs and effects will be the same out 100 years as out 150 years. The regional analysis



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should not have just added up the forest plans, but rather the forest service should have built a regional FORPLAN model to assess the likely impacts and subregional shifts in allocations and schedules from the various Vegetation Management DEIS alternatives.

Page B-4: The assumption that forests cannot affect price of their assumed "reasonable" output levels is totally without merit. The National Forests can and do affect the price of timber, and if quantities offered are restricted due to lack of vegetation management, the prices of stumpage will increase.

Page B-6/7: The DEIS makes note that some costs were not affected at all by the analysis and therefore were excluded from the analysis. It also stated that their related benefits were "of course" also excluded. What were these costs and benefits and the justification for their exclusion?

Page B-9: The budget effects table is meaningless unless Alternative B line items are identified. There is no way to understand this table without data on the magnitude of the change from Alternative B, making this data necessary. Use the FY'87 budget request if you cannot use FY'88 data.

Page B-10: As mentioned before, the stumpage values developed for the forest plans are bogus and do not reflect today's values at all. They should all be re-evaluated.

Page B-13: The social and economic impact analysis is inadequate. Most of the discussion is on IMPLAN, a Forest Service output driven model that no other agency uses. Most use the Bureau of Labor's statistics model which is based on income and economic activity, a much more realistic model. There is no timber demand analysis in the Vegetation Management DEIS and it is imperative that one be undertaken to understand the potential impacts of the proposed decisions.

Page B-22: The jobs related to national forest harvest are listed as 16.92 per million BF in Oregon and 17.92 for Washington. The Vegetation Management DEIS supposedly used the same basis for jobs as the spotted owl SEIS analysis. The SEIS used 25.13 jobs per million BF in Oregon and 25.9 jobs

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per million BF in Washington. Why the discrepancies? Doesn't this effectively understate reported loss jobs by about 50%?

Page B-23: Why are the personal income effects based on 1977 dollars inflated to 1987 dollars? A 1987 base analysis should have been used since the economy has changed dramatically in those ten years. In fact it is stated that 1972 was the base analysis period for IMPLAN, which is over 15 years old and really of no merit or value at all.

## 5) THE COST OF VEGETATION MANAGEMENT TREATMENTS WERE NOT, BUT SHOULD BE, CONSIDERED IN DETERMINING PRESCRIPTIONS

The forest plans assume that all vegetation is rendered free to grow after regeneration, regardless of cost. The forests built into their average regeneration costs some expensive treatments such as hand release. However, the allocations and schedules are determined by using these high costs. We believe that the forest plans should have separated expensive non-chemical treatments and traditional herbicide treatments and allowed the PNV objective function to work. Thus, one would be able to clearly select the most efficient prescription for the plan. The Vegetation Management DEIS simply incorporates whatever the forests did, correct or not.

Additionally, the forests (west side) use DPDFSIM which is an economic optimization yield table model. By using high average release costs, almost all prescriptions had negative present net worth across the west side. The Vegetation Management team should have also used yields that were based on maximum productivity and not just the economic ones. The result is that the potential productivity of the forests is probably understated whereas the costs of the treatments are overstated. Thus, less acres came into solution in the forest plan and the potential harvest levels (sell) is understated. Hence the projected falldowns in yield are understated from not using herbicides.

## 6) INAPPROPRIATENESS OF THE HORIZONTAL DEMAND CURVE WHICH ASSUMES THAT PRICES ARE INSENSITIVE TO VOLUME OF TIMBER OFFERED FOR SALE

In the economic efficiency analysis, prices are assumed to be insensitive to volumes of timber offered for sale. This assumption is strained when analysis is undertaken on a forest-by-forest basis and is clearly inappropriate for analysis in timbersheds dominated by national forest timber such as is the case in southwest Oregon.

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For example, 43% of the 1986 timber harvest volume in Curry, Josephine and Jackson Counties came from national forests. According to individual forest data, Alternative C would lower timber harvests by 60% on the Rogue River National Forest and remove 29% of the suitable land base from the Siskiyou National Forest.

These harvest reductions would occur at approximately the same time as projected falldowns in timber harvest levels on industrial ownerships in the same area. Also harvests on Oregon's national forests are expected to fall about ten percent from current levels as a result of NFMA planning. In addition, paper, lumber and wood products demand is expected to remain at high levels both domestically and from overseas.

With intense competition for stumpage expected and mills highly dependent on national forest timber, it is unrealistic to conclude that a horizontal demand curve exists for national forest timber in Oregon or in Oregon's timberheds. The same situation likely exists in Washington.

7) ANALYSIS WERE NOT DONE ON SUBREGIONAL BASIS

Because of above mentioned reliance on national forest harvests in timber dependent areas of the State of Oregon, analysis should be undertaken which recognizes that these areas have economies different than those of the states' metropolitan areas or of the state as a whole. Rural areas of the state would be more affected by changes in harvest levels from the national forests than would be areas of the state less dependent upon the lumber and wood products industry. Metropolitan areas and the regional economics as a whole, while still affected by national timber harvest levels, are becoming increasingly diversified and less dependent upon the lumber and wood products industry. Currently, however, Oregon is much more dependent than Washington.

Because these rural areas are so dependent upon national forest timber, their economics are strongly influenced by national forest management activities, as well as by other national and international economic forces which influence the health of the lumber and wood products industry. The social and economic analysis should recognize the dependence of these areas on national forest timber and should analyze the DEIS alternatives as to the effects on timber dependent areas.

8) INFLEXIBILITY OF MITIGATION MEASURES

Mitigation measures do not appear to allow the flexibility of



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site specific prescriptions, giving the local expert the ability to adequately balance risks to the environment, workers and the public with benefits of vegetation management. There must be minimum levels of protection, but above these minimum levels flexibility should be left for site specific prescriptions.

For example, herbicide mitigation measures in all alternatives include, for aerial applications, a minimum unsprayed width of 100 feet horizontal distance along Class I, II, and III streams. For aerial applications on Class IV (intermittent) streams, a minimum unsprayed width of 50 foot horizontal distance will be maintained if the stream is flowing. In addition, a minimum unsprayed width of 50 feet will be maintained along all flowing streams and all wetlands with other than aerial application methods.

These mitigation measures are well in excess of the buffer strips required by the Forest Practice Rules and will unnecessarily limit the range of alternatives as well as the cost effectiveness of herbicide applications. Forest Practice Rules require "...leaving an unsprayed strip of at least one swath width (60') on each side of every Class I water or area of open water." For ground applications, an unsprayed strip of at least ten feet left on each side of every waterway or area of open water is required.

The reasons for and benefits of mitigation measures which go beyond the requirements of Forest Practices Rules should be documented. If there are valid environmental or economic reasons for wider buffer strips in particular areas, wider buffer strips should be required only in those areas.

The effects on acres treated by alternative and increased costs of such extreme measures were not fully considered nor documented and must be done. It is highly likely that in areas with high rainfall or significant open waters, these measures could prove to be of greater adverse impact than the alternative itself.

#### 9) BENEFIT AND COST COMPARISONS IN SEVERAL TABLES ARE INACCURATE

The benefit and cost comparisons developed in Tables II-7 and II-8 contain several problems. First referencing the tables to Alternative B masks the benefits and costs. It therefore clouds the relative economic efficiency of vegetation control in the forest planning process. In fact, any evidence of economic analysis that support the forest plan vegetation control practices is lacking. This makes the Vegetation Management EIS an economic exercise apart from and inconsistent with the forest planning analysis.

In addition, these tables are incorrectly labeled for

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Alternatives A, C, D, E, and F with the benefit and cost labels reversed. Because the analysis is a marginal difference from the reference B alternative, the benefits presented in the tables are reduced benefits or costs. Likewise, the costs presented in the tables for the above alternatives are reduced costs of the program which should be labeled as a benefit of the alternative as compared to Alternative B. Alternative G does not exhibit the reversal in labels as it is an expanded program of vegetation management and therefore there are increased benefits and costs associated with this program. Reversing the table and subtracting the redefined costs from the benefits will result in present net value. Costs will then be larger than benefits for each alternative except G where incremental benefits exceed incremental costs.

In addition, a ratio of benefits to costs can then be calculated which will show the relative efficiency of benefits or outputs to costs or inputs for these alternatives with significantly different scale of investments. Given the suggested revision of the table, the ratio of benefits to costs is consistent with the present net values, in that all alternatives except G, which have negative present net values, also have benefit-cost ratios of less than one. It is interesting to note that Alternative G only represents a five percent increase in the annual number of acres treated, but has a benefit-cost ratio greater than one and a positive present value contribution.

To the extent Alternative G represents adding economically marginal acres to the base program being in the forest plans, it suggests that the forest plan alternative could have a higher economic efficiency and that there are still more marginal opportunities that could be added to the forest plans and still earn greater than a 4% return on investment. This is disturbing in that the forest plan is supposedly maximizing present additional opportunities for increasing present value. Thus, there is a major inconsistency between the analysis in the forest planning effort and the Vegetation Management EIS.

From an economic efficiency standpoint (benefit-cost relationship), Alternative F is greater than the selected Alternative E, as indicated in the following revised tables. At seven and one-eighth percent discount rate, none of the alternatives has a positive net present value or positive benefit cost ratio. This indicates that none of the alternatives exceed a seven and one-eighth return on investment. Alternative G, which had a positive present net value at four percent, thus has a rate of return between four percent and seven and one-eighth percent. Any efforts to propose a revised alternative should contain at least the additional acreage contained in Alternative G.



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REVISED TABLE II - 7

Alternative:	A	B	D	E	F	G
Benefit	16	3,499	633	158	531	525
Costs	484	7,326	879	290	852	501
PNV	-468	-3,827	-246	-132	-322	24
B/C Ratio	.03	.48	.72	.54	.62	1.05

REVISED TABLE II - 8

Benefits	4	2,009	387	121	325	298
Costs	280	4,199	506	189	489	318
PNV	-276	-2,190	-119	-68	-164	-20
B/C Ratio	.01	.48	.76	.64	.66	.94

## 10) INCONSISTENT BENEFIT AND COST ESTIMATIONS

Reference to appendix table B-2 quantifies budget impacts from vegetation management for an array of budget categories. Included in these cost categories are items which contribute to non-market outputs as trial maintenance, wildlife habitat nonstructural improvements, and threatened and endangered species, nonstructural improvements. On the benefit side, however, the only quantified impacts are for timber market benefits. Therefore, an inconsistency exists since in the cost analysis, non-market values are included, but in the benefit analysis only timber market values are included. This understates the benefits of plan alternatives. Again, inconsistencies in EIS analysis appear -- forest plans include a quantification on non-market benefits which are excluded from the vegetation management EIS.

## 11) NO CONSTRAINTS ON BURNING, COST OF DOING BUSINESS, ECONOMIC EFFICIENCY, AND UNLIMITED LABOR SUPPLY ARE UNREALISTIC ASSUMPTIONS USED IN DETERMINATION OF ZERO LTSY REDUCTIONS

The zero LTSY reductions in the absence of herbicides cited for

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the Douglas-fir vegetation complexes in Appendix A (A-35) and Appendix E (E-12) assume that burning is unconstrained. As well articulated in "Reforestation in the Absence of Prescribed Fire for Site Preparation" (Appendix E-13 to E-15), the use of prescribed burning for site preparation can be critical in some sub-regions to ensure reforestation success, particularly in coastal and southwestern Oregon. Other assumptions that are made to arrive at the zero LTSY reduction projections include an unconstrained cost-of-doing business, unconstrained economic efficiency, and unlimited labor supply. None of these four assumptions seem reasonable or realistic. Without these assumptions, the LTSY reductions for the Douglas-fir complexes would be substantial compared with yields from intensively managed stands -- particularly if herbicides were used to control herbaceous competition at the time of plantation establishment. It is misleading to use zero LTSY reductions for analysis in the DEIS when unrealistic assumptions must be made to arrive at that conclusion.

12) HUMAN HEALTH ASPECTS OF JOB LOSS ARE NOT CONSIDERED

The economic/sociological assessment in the DEIS doesn't acknowledge or evaluate the real and traumatic human health effects that result from a decrease in employment. Professor Ed Week's analysis (Weeks 1982) of alcoholism, divorce rates, and child abuse associated with high unemployment in timber dependent communities suggests that there may be significant human health aspects. While the DEIS projects changes in jobs and personal income as the result of choosing one alternative over another, it fails to examine or discuss the serious social and human health consequences which might result. It is worth noting that previous comment indicated that job losses were understated considerably. Therefore, the collective impact on a community would also be much greater.

(Weeks, E.C. 1982. Plant Modernization and Community Economic Stability: Managing the Transition. Dept. of Planning, Public Policy and Management, University of Oregon.)

13) WRITTEN DESCRIPTIONS OF ALTERNATIVES ARE INCONSISTENT WITH  
PROJECTED ACTIVITY LEVELS

There appear to be inconsistencies between the written descriptions of the alternatives and the projected annual activity levels reported in Figure S-3. There may be misunderstandings about what each alternative means; particularly Alternatives D, E, and G.

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Projected activity levels for Alternative D are puzzling and probably drastically underestimated. The early preventive measures emphasized in this alternative should be listed and included in the activity levels of Figure S-3. The most obvious preventive measures available for conifer reforestation are the site preparation techniques of mechanical piling and prescribed fire and yet both those activities, inconsistently and surprisingly, are projected to be much lower under Alternative D than Alternative B. It is not apparent that Alternative D is clearly defined or how implementation would be carried out if this alternative was chosen. Quoting from the DEIS II-43 in reference to Alternative D, "As knowledge is gained through the increased emphasis on research and monitoring, the vegetation management programs will tend to become more effective and efficient." And, "Management emphasis under this alternative also tends to encourage more creativity in dealing with site-specific problems." This sounds like unjustified wishful thinking. The Forest Service needs to provide the data to support a 31% decrease in acres treated due to "prevention", as well as the additional reductions necessary to achieve the 60% future potential claimed to be attainable under Alternative D.

Alternative E is supposedly designed to "...improve the safety of forest workers when they apply herbicides and cut vegetation." Aerial herbicide application would not be done under Alternative E so the 47,900 acres projected for herbicide treatment (only 20 percent less than Alternative B) would all be done by hand. Aerial herbicide application is far safer for workers than hand application because fewer workers are exposed to lower concentrations in a less direct manner for a shorter period of time. More area can be treated per worker per day aerially than by hand. Projected activity levels for manual methods show 17,300 acres per year more for Alternative E than base Alternative B, a 22 percent increase. This is inconsistent with an alternative promoted as one to improve the safety of forest workers since manual vegetation cutting is more dangerous work.

Alternative G is described as the most aggressive alternative -- emphasizing cost efficiency, timber and forage production, and growth enhancement. Surprisingly, the total acreage projected for treatment under Alternative G is only five percent greater than under Alternative B. The inefficient and less effective manual and biological methods are projected to be used more under Alternative G than Alternative B, as are acres "Receiving no treatment" and the undefined "Other" -- all contrary to the expected. Alternative G needs to be rewritten to include a more "aggressive" enhancement program. Even though it is highly unlikely that the public would choose this alternative, it is needed to more accurately show the public the benefits that COULD BE achieved under a properly run, aggressive management program.



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14) FORPLAN ANALYSIS NEEDED FOR CERTAIN IMPACTED FORESTS

The 100 year harvest flow impact methodology may be too simplified to identify some of the impacts of vegetation management intensities. Many pest impacts, that on average are trivial, may be significant on a site specific basis or time of stand development basis (first decade after planting). Specific FORPLAN harvest scheduling analysis should be done for certain impacted forests, and representative stand-level economic analysis should be done to evaluate the cost effectiveness of vegetation management techniques for specific forest types such as tanoak or alder-salmonberry.

15) ALTERNATIVE "D" CANNOT BE CLEARLY EVALUATED AS IS

Alternative D should probably be eliminated. Neither the interdisciplinary team nor the document has any clear interpretation or definition of "herbicides as last option" bringing into question the numerical analysis of this alternative. The definition is apparently not based on cost-effectiveness, productivity loss or land-base loss; and yet, variations in intensities and methods of vegetation management affect each of these and the numerical evaluation criteria. With no agency definition, the interpretation of "last option" would be left to interest groups or perhaps once again the courts. It is unacceptable to leave this definition up to the reviewer. It is obvious that the Forest Service, OFS and groups like NCAP each have different concepts in mind. Based on documentation published by NCAP since October 1987, it is clear that their definition would all but totally prohibit the use of herbicides. This is in direct conflict with the "all tools readily available" assumption used in the forest plans.

16) STAND LEVEL ECONOMIC ANALYSES WERE NOT DONE

Proper evaluation of differing vegetation management strategies requires analysis at several levels. First, economic treatments must be found on a stand by stand basis. These treatments (and their associated benefits and costs) are then aggregated by operating unit (National Forest). The effect of restrictions on, or other changes to available treatments can be evaluated in terms of their impact on stand level decisions and resulting departures from optimal treatments. The DEIS undertakes the analysis of alternative vegetation management strategies from the top (Region 6) down. This approach leaves open the question of whether any alternative is economically efficient at the stand level. The DEIS talks about economic efficiency but has not

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undertaken the analysis to demonstrate it.

- 17) INCONSISTENCIES WERE FOUND BETWEEN STATED ASSUMPTIONS AND OTHER DATA IN THE DEIS AND INPUT SUPPLIED BY THE FORESTS TO THE EIS TEAM

Upon examination of the questionnaires supplied by the National Forests to the Region EIS team, inconsistencies were found between stated assumptions and other data in the DEIS and the input supplied by the forests. These discrepancies should be reconciled in the DEIS documents prior to its final release. They are indicators of problems associated with the top-down analysis style used in the preparation of the Draft.

- 18) ALTERNATIVES CANNOT BE ADEQUATELY EVALUATED BECAUSE COST AND BENEFIT DATA ARE MISSING FOR THE BASE ALTERNATIVE

The alternatives cannot be adequately evaluated because cost and benefit data are missing from the Appendix for Alternative B. The economic efficiency (cost/benefit ratio or other suitable measure) of the base case is unattainable. Therefore, despite the presence of marginal figures with respect to Alternative B, no other alternative can be evaluated. We need to know how efficient the base case is in order to determine what valid alternatives exist and what the range of those alternatives is.

- 19) ALTERNATIVE B IS NOT AN ACCURATE BASE CASE

Harvest levels in the Region are expected to be 10% less than those reflected in Alternative B. This discrepancy indicates Alternative B is not a realistic base to which other alternatives should be compared. The financial, labor, safety, and yield aspects of the DEIS marginal analysis are rendered inadequate under changes in the base case. A new base case alternative should be drafted reflecting realistic harvest levels.

- 20) THE RANGE OF ALTERNATIVES IS UNDULY RESTRICTIVE IN TERMS OF PROGRAMMATIC EMPHASIS AND QUANTITY

The range of alternatives is unduly restrictive in terms of programmatic emphasis and quantity. Programmatically, Alternative A excludes herbicides and Alternative C excludes prescribed fire, but there is no alternative which excludes mechanical and manual methods of vegetation control in favor of herbicides and fire. In addition, there is a limited range of



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annual number of treatment acres with Alternative G only having five percent more acres than Alternative B, but Alternative D having thirty-one percent less treatment acres than Alternative B. These limitations obviously do not present a full range of alternates or economic outcomes for the public to choose from.

ALTERNATIVE "B" PLUS - INTEGRATED VEGETATION MANAGEMENT

All effective and efficient techniques for managing competing and unwanted vegetation are available, consistent with the direction provided in applicable land and resource management plans.

The most appropriate strategy and tool will be used to meet well defined, measurable goals for resource management. This integration of control strategies and best available technology will ensure that each individual national forest in the Region maximizes its overall, multiple-use outputs of goods and services (timber, recreational opportunities, forage, water, wildlife habitat, and safe travel) within acceptable environmental, human safety, AND budgetary constraints.

An integrated vegetation management approach will be taken to achieve these specific goals. This approach stresses the combination of the most appropriate management strategy (no action, prevention, enhancement or correction) and the best available technology (biological, prescribed burning, manual, mechanical or chemical) to meet applicable land and resource plans.

Preventive measures will be preferred, provided they are proven to be effective and cost efficient methods of control. New tools and methods of control will be sought.

The management strategy and method used will be determined on a project by project basis using consistent evaluation criteria and site-specific information to ensure that the best option for a particular project has been selected. Evaluation criteria will include:

- \* Worker safety/risk
- \* Public safety/risk
- \* Environmental impact:
  - Air
  - Water
  - Soil
  - Non-target plants
  - Wildlife and fish
- \* Other local or site specific concerns/problems
- \* Cost of treatment
- \* Effectiveness (ability to meet desired goals)  
(list continued)

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- \* Resource limitations:
  - Budget
  - Manpower
  - Time or window of opportunity
  - Equipment

This alternative places heavy emphasis on planning and early public involvement for input on goal priorities and the setting of standardized evaluation criteria.

Specific quantitative goals will be determined on a site by site basis, to ensure that minimum qualitative requirements for every project are maintained. Specific measurable goals will be set for:

- \* Site preparation for planting trees;
- \* Improving seedling survival rates;
- \* Enhancing tree growth on full-yield timber acres;
- \* Enhancing tree growth on less than full-yield acres;
- \* Releasing of young conifers from competing vegetation;
- \* Managing and preventing fires;
- \* Improving range conditions for livestock;
- \* Controlling noxious weeds;
- \* Improving wildlife and aquatic habitats;
- \* Maintaining recreational and administrative facilities;
- \* Maintaining roadsides and utility rights of ways;
- \* Supporting research and monitoring programs;
- \* Improving forest worker proficiency and safety training programs; and,
- \* Improving public education and communications.

The NEED for action will be EVALUATED at the first sign of any competing or unwanted vegetation or other related conditions that could have a negative impact on the established individual national forest output goals for goods or services. This process stresses close monitoring and evaluation for EARLY DETECTION to minimize the need for large-scale corrective measures or significant impacts to long-term environmental and productivity goals.

The following IVM proposal was put together by the Oregon Society of American Foresters. It does not match all concepts and ideas set forth in Alternative "B-PLUS". Its purpose is to illustrate how an Integrated Vegetation Management proposal COULD BE DRAWN together from the various elements of the seven alternatives in the DEIS.

## PROPOSAL FOR AN INTEGRATED VEGETATION MANAGEMENT (IVM) ALTERNATIVE

	<u>Instructions</u>	<u>Rationale</u>	<u>Source</u>
Philosophy	"...to intensively manage resources, meet Forest Service program goals, and to have minimal adverse effects on [humans and]* the environment."	Promotes optimum output of goods and services while protecting humans and the environment.	p. II-3
Procedure	[Use a six-step, site-specific process which includes: 1) management goals, 2) site analysis, 3) strategy selection, 4) project design, 5) action/implementation, and 6) monitoring and evaluation.]	Ensures a thorough site-specific approach with appropriate provisions for planning, decision-making, implementation, and feedback.	p. II-54 to 61
	[Incorporate] "early involvement of the public in [goal and criteria setting,] environmental analysis procedures, and on carrying this participation through to project implementation and monitoring." [Develop a detailed procedure which documents the steps necessary to fulfill this obligation.]	Provides maximum opportunities for public participation, input, and feedback. Promotes public confidence and acceptance.	p. II-12, Alt. D
Purpose & Theme	"All effective and efficient techniques for managing competing and unwanted vegetation are available, consistent with the direction provided in applicable land and resource management plans."	Maximizes flexibility and options available. Promotes a truly integrated approach to vegetation management.	p. II-8, Alt. B (also Alt. G)
	"...approximates the direction presented in proposed Forest Plans."	Minimizes disruption of the planning and implementation of Forest Plans. Approaches case where most experience and confidence exist in meeting management goals and objectives.	p. II-8, Alt. B

\*Items enclosed in brackets are additional text not included in the current DEIS.

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	<u>Instructions</u>	<u>Rationale</u>	<u>Source</u>
Time for Action	"The need for action is evaluated at the first [measurable] sign of any competing or unwanted vegetation that could potentially damage wanted species or desired conditions."	Promotes early detection, thereby maximizing opportunities for dealing with the problem in an appropriate fashion, with minimum site disturbance.	P. II-6, Alt. A (also Alt. B, D, E, F, G)
Project Design Strategy	"Prevention is the preferred strategy, except where correction is either the only feasible approach, or can be shown to incur lower cost or environmental impact [and risk to humans]."	Allows flexibility to deal with problems or potential problems in most appropriate manner, including taking no action.	P. II-14, Alt. E (also close to Alt. A, D, F, G)
	"...correction, if needed, is done in a way to [complement] natural ecosystems and processes."	Protects long-term ecosystem health.	P. II-12, Alt. D
	"Regardless of whether control is applied, monitoring [record-keeping, surveillance] and evaluation are essential."	Provides validation and rapid feedback in case corrective action or mitigation measures are needed. Also increases data base for future situations.	P. II-6, Alt. A (also Alt. D)
Human Health	"All techniques being considered will be analyzed [on an equal basis] for potential direct and indirect effects on human health [(both physical injury and toxicological effects)] prior to [use]. The selected technique will have low risk when compared to other suitable techniques that also meet other design criteria."	A wise, defensible course of decision-making which is based on equal and consistent criteria.	P. II-6, Alt. A (also Alt. D, E, F)



# I/B Public Participation and Consultation

VMDEIS

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<u>Instructions</u>	<u>Rationale</u>	<u>Source</u>
Environmental Effects	"Adverse effects in both the long- and short-term will be minimized by following the appropriate land-management planning documents, and by additional mitigation measures [as appropriate and] described in this EIS."	p. II-8, Alt. B (also Alt. A, D, E, F, G)
	"In the face of uncertainty concerning effects of a particular tool, the manager will balance the potential for an adverse environmental impact with cost and benefits." [The degree of uncertainty will be explored in detail. Criteria to be used in such an evaluation should be valid and comprehensive across all tools.]	p. II-6 to 7, Alt. A (also Alt. B, F, G)
Tools Available	"All tools and techniques are permitted. The use of tools has and will continue to change, based on new research, the analysis of completed projects, and improvements in technology."	p. II-9, Alt. B (also Alt. G)
	"Opportunities to reduce the [dependency on any one tool or technique] will be sought."	p. II-9, Alt. B
	"The use of [all] tools will require operator safety training and proper protective gear, and will not be used [under conditions that are excessively hazardous]."	p. II-15, Alt. E
	[Efforts should be made to coordinate the use of broadscale tools having the potential for major off-site impacts (e.g., slash burning) among public and private landowners.]	N/A

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<u>Instructions</u>	<u>Rationale</u>	<u>Source</u>
<b>Budget and Cost</b>		
"The costs of activities will vary, but will generally not exceed budgets that can be reasonably expected."	Assures compliance with budget allocations.	P. II-7, Alt. A (also Alt. B, D, E, F)
"The methods selected will be the most cost-effective means to meet the management objectives [within the guidelines necessary for realistically protecting public health, worker health, and the environment according to valid and consistent criteria.]	Assures fiscal responsibility.	P. II-9, Alt. B
<b>Outputs</b>		
"Vegetation management activities will be those required to support the production of Forest commodities [and amenities] at a level approximating those of the applicable land and resource management plans."	Assures a balance of economically-important commodities and environmentally-important amenities.	P. II-7, Alt. A (also Alt. B, E, F)

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TOXICOLOGY/RISK ASSESSMENTS: COMMENTS AND CONCERNS

OFS activity in the area of toxicology and risk assessments was directed toward two goals: 1) to ensure that an adequate peer reviews of these subjects were conducted by independent experts, and 2) that the toxicological and exposure information on forestry herbicides presented in the Vegetation Management DEIS and Appendices were carefully scrutinized by the appropriate manufactures and/or registrants. We believe we were successful in accomplishing both.

With the support of many individuals, the Forest Service agreed to contract a series of outside, independent peer reviews of the human health aspects of Chapters 2 and 4 of the Vegetation Management DEIS. A total of nine reviews were arranged through the University of Washington and Oregon State University.

The Forest Service is to be highly commended for this effort.

By the close of the public comment period on February 15, 1988, five of these reviews have been received by the Forest Service. It is very unfortunate that any or all of these highly informative documents were not available for public distribution before the close of the comment period. They place much of the extremely technical information into better perspective, bringing to light the conservative assumptions made in the process.

Of the five reviews shared with OFS to date, two stick out as being noteworthy of mention and review -- those of Dr. Dost and Dr. Weir. The peer review done by Dr. Frank Dost is extremely detailed and contains very specific technical deficiencies and errors that can be and should be incorporated into the subsequent assessments. OFS urges you to carefully consider this and all peer review recommended changes.

The document prepared by Dr. Weir, however, is of a different nature in that it deals with the questions asked in a much broader sense. He appears to relate very well to the problem of communicating the intricacies of risk to a skeptical public. It is in this light that I believe the main body of his review merits inclusion in the OFS response. Although you may have already read Dr. Weir's review, I urge you read it again. This time consider how Dr. Weir's comments specifically apply to the DEIS authors' biases of an anti-herbicide nature. It is clear that they have influenced not only the tone but outcome of this document -- and therefore will have a similar negative influence on the public's perceptions of herbicides. This is a classic example of a "self-fulfilling prophecy."

## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

The following are my comments concerning the Managing Competing and Unwanted Vegetation Draft Environmental Impact Statement.

I encourage the adoption of Alternative D, the Integrated Pest Management alternative which uses herbicides as a last resort, with the following qualifications:

- I would define "last resort" for herbicide use as: an instance where there is documentation that no other alternatives would work and if no action were taken, there would be extreme negative effects. If there is a documented need for herbicide use, only the least toxic herbicides should be considered for use (2,4-D should be banned and "inerts" should be considered when determining toxicity).

- Right-of-Way- Roadsides should not be treated with herbicides since there is too great a chance of public exposure and there is evidence that roadside vegetation can be managed without the use of herbicides. The proposal to spray trails with herbicides is absolutely outrageous and should definitely be dropped from the DEIS. The reason I hike Forest Service trails is to enjoy the wildflowers and the native plant communities (I hike in all seasons so spraying in the "off season" is not the answer) as well as for a healthful form of exercise. The spraying of herbicides for trail maintenance would totally destroy their scenic value and pose a health threat to hikers. This is a good area to create jobs or form local volunteer trail crews to clear trails manually. If you decide to spray trails anyway, you will be excluding me from my own National Forest because I will never hike on a Forest Service trail again.

-Public Notification- The public has the right to know when and where herbicides are being used so we can avoid the areas if we choose. If and when herbicides are used in the National Forest, the areas should be posted with signs stating which herbicides were used and when. The areas should have "intent to spray" signs posted two weeks prior to spraying and "warning" signs posted at the time of

continued on page 2



08/01/94

Debbie Pickering comments on Vegetation DEIS

Page 2

treatment listing the date and the herbicide used which will be left up for a month after the spraying. Forest units should be posted about every 10 feet around the boundary as should all public building grounds and campgrounds (although I would insist that herbicides be avoided in campgrounds) and right-of-ways every 100 feet of treated area.

-Public Participation- In order to have full public participation in Forest Service vegetation management decisions, local informal vegetation management working groups should be established. These should be formed of local interested citizens who do not have a vested interest in forest products. The working groups would work with their Forest Service District personnel to make decisions about harvesting and vegetation management on specific local sites all the way through the site specific environmental analyses process.

-Prescribed Burning-The use of fire in site preparation many times does more harm than good. Burned areas are ideal sites for just the type of vegetation that the Forest Service considers unwanted, resulting in a greater need for vegetation management later. Other drawbacks of prescribed burning are: escaped burns becoming wildfires, reduced soil fertility, greater soil runoff, degraded water quality, human health hazards and degraded air quality which negatively affects local tourism. In light of these hazards, the number of acres prescribe burned should be drastically reduced.

-Effects on Tourism-Many aspects of Forest Service vegetation management have the potential to affect the tourist economy on the Oregon Coast. Herbicides in the water or unsightly browned-out vegetation and massive clouds of slash smoke can negatively affect tourism whereas scenic drives, campgrounds and lush natural trails can have a positive effect on local tourist economies. I suggest the EIS reflect a consideration of other affected economies, not just the timber products industry.

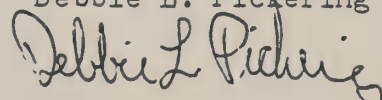
-Change in Jobs-Figure S-3 on page Summary-10 states that alternative D will result in 3,100 fewer jobs. I dispute that since our local Forest Service District personnel are concerned that alternative D would result in more work for them. Alternative D would simply replace some of the corrective action personnel with research, monitoring and planning personnel and this should be reflected in the EIS charts.

As far as protecting the environment is concerned, it is not reasonable to expect your mitigation measures to be 100% effective and to therefore write-off all environmental consequences as being protected by them. For example, complying with state and local regulations is not currently alleviating environmental consequences of slash smoke so how could it do so under your EIS? That is why it is so important to use an IPM approach which strives to prevent problem vegetation conditions through the integration of natural ecosystem processes as in alternative D.

Your qualitative risk analysis shows that there are data gaps and inadequate information concerning toxicology. In light of this, the quantitative risk assessment should be dropped from the DEIS since the data is not there.

Thank you for accepting these comments and giving them your consideration in writing the Final EIS.

Debbie L. Pickering





Feb 16, 1988

001470

COMMUNITY

8891 01 657

Dear Gary Larsen,

I am sending up this outline of our response to the Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation. Our printer has failed us at a critical moment here and refuses to print anything more for us. My handwritten text would not be very legible, I afraid, so I will seek out a more reliable printer today to finish printing the text of our response. I will try to have the completed document on the Greyhound bus tomorrow morning so that you may receive it in the afternoon.

Thank you in advance for your patience and understanding.

Sincerely,

Jane Wroney

JAN WRONCY

spokesperson for R.O.A.D.S.

Residents of Oregon Against  
Deadly Sprays.

P. O. Box 1101

Eugene, OR 97440

# I/B Public Participation and Consultation

- I. Poor Forest Management
  - A. Old Growth - Irreplaceable
  - B. Second Growth - Inferior
  - C. Clearcutting - Ecologically and Environmentally Bad
  - D. Destruction of Soil Fertility
  - E. Loss of Soil
  - F. Heating up of land - reduces rainfall and moisture
  - G. Heating up of land - destroys ecosystem
  - H. Heating up of land - loss of wildlife- plant, animal
  - I. Desertification - Ethiopia 80 yrs ago forest
  - J. Toxic chemicals - pollution
  - K. Loss of foliage, organic matter, humus
  - L. Loss of micro-organisms, bioactivity
  - M. Acid and Toxic Rain
  - N. Loss of Water purity and quality
    - 1. Toxic Chemical contamination-Dioxin
    - 2. Erosion
    - 3. Smoke contamination
    - 4. Contamination from smoke containing chemicals
    - 5. Synergism
    - 6. Acute and Chronic effects
    - 7. Contamination of Aquifers-100's even 1000's yrs
    - 8. Water Vital to Life, Human, Plant and Animal
    - 9. Filtering not totally effective
    - 10. Burden of cost of filtering
    - 11. Spreads the pollution
    - 12. Protect municipal not private supplies
    - 13. Ultimate pollution of municipal supplies
    - 14. Pollution of drinking, bathing and home use
    - 15. Pollution of irrigation water
    - 16. Damage to fish and wildlife
    - 17. Damage to recreational water resources
  - O. Loss of Air purity and quality
    - 1. Air shed, interface
    - 2. Pollution transported globally
    - 3. Lung Damage, Systemic Damage
    - 4. Animal Health Damage
    - 5. Plant Health Damage
    - 6. We Can't Manufacture protein from polluted air
    - 7. Visiability
    - 8. Air Eventually Deposits Pollutants
    - 9. Photochemical changes of Pollutants
    - 10. Reduced Quantity and Quality of Sunlight
- II. Chemicals and Smoke From Intentional Burning
  - A. Unsafe, always find out after years of use
  - B. Unnecessary
  - C. Pervasive
  - D. Persistent-Dioxin, DDT, Chlordane
  - E. Non consent to trespass and tort
  - F. Illegal to state pesticides are safe
  - G. If not safe. then unsafe
  - H. Laws - Environmental, FIFRA, Constitutional, Strict
  - I. Health Effects-Acute and Chronic

- J. Synergistic effects
- K. Irreversible damage to health
- L. Irreversible damage to environment

### III. Chemically Sensitive

- A. Right to Protection Under Law
- B. Doctor's Orders to Avoid all Chemical Exposure
- C. Organically Grown Food Only
- D. Became chemically sensitive from Previous Exposure
- E. Liver, Kidney and Immune System Damage
- F. EPA, FDA and Public and Private Decisions at Fault
- G. Synergistic Effects
- H. High risk for Cancer
- I. Have Right to Live Where We want to
- J. Have Right to Own or rent property
- K. Have Right to Use and Enjoy Public Lands, Facilities
- L. Have Right to Use any Land, Facility Open to Public
- M. Have Right to Work, to Learn and to Play Where Want

### IV. O. G. Farmers

- A. Basic Constitutional Right to Choose
- B. Most of OG Farmers Chose for Environment
- C. Chemically Sensitive
- D. Cancer patients
- E. Allergy and Asthma
- F. Health Protection, Disease Prevention
- G. Diseases Real Cause - Chemical Insult
- H. Oregon, Calif. and Wash. Law O.G.
- I. Oregon Tilth Standards
- J. No Trespass Allowed
- K. Marketing
- L. Commitment to O.G. Farming and Marketing

### V. Air

- A. Airsheds
- B. Chemicals
- C. Smoke
- D. Mixture
- E. Visibility
- F. Sunlight
- G. Purity
- H. Protein Synthesis
- I. Interface
- J. Particulate
- K. Vapors
- L. Photosynthesis
- M. Respiration
- N. Laws

### VI. Water

- A. Private supplies
- B. Municipal supplies
- C. Irrigation
- D. Recreational

# I/B Public Participation and Consultation

- E. Fish and Wildlife
- F. Springs
- G. Streams and Rivers
- H. Lakes
- I. Drainage and Irrigation Ditches
- J. Ponds and Reservoirs
- K. Groundwater
- L. Interface
- M. Interference with Rain
- N. Irreversibility of Damage
- O. Expense of Filtering
- P. Watersheds
- Q. Laws
- R. Washing
- S.. Fog, Mist and Rain

## VII. Land

- A. Stewardship
- B. Trespass
- C. Soil Fertility
- D. Multiple uses
- E. Future Uses
- F. Oregon Land Use Plan
- G. Laws
- H. Organic Farms and Gardens
- I.. Transition to O. G.
- J. Oregon O.G. Farm Law
- K. Right To Live Where We want to
- L. Public Trust
- M. Non-renewable resource
- N. Mining soil while harvesting timber

## VIII. Trespass

- A. Violation Of U.S. Constitution
- B. Violation of Oregon State Constitution
- C. Trespass via Air and Water and Rain
- D. Trespass into our bodies
- E. Trespass into our Futures
- F. Can't simply remedy with money
- G. Can't trade or replace land
- H. Can't Clean up Land Or Water Source
- I. Trespass via Animals and Plant Materials
- J. Can't remedy lost health with money alone
- K. Good Health and Life invaluable
- L. Liability lasts as long as chemical and/or damage
- M. Altered Lifestyle because of trespass

## IX. Toxic Tort

- A. If in Air Or In Water, Assume Entered Body
- B. In Crops
- C. In House
- D. Smell or Taste enough Evidence
- E. Experimentation on humans without
- F. Burden of proof on polluter

- G. Conscience of Decisionmakers
  - H. Conscience of Applicators
  - I. Synergistic effects
  - J. You drink it, you breath it , eat it
  - K. Can't decide for someone else or for
  - L. Children born or unborn
  - M. Future Generations
  - N. Choice of sterility or cancer irriversible
  - O. Recreational exposure:campgrounds, lakes
  - P. Fishing, Hunting, Foraging
  - Q. Public Buildings
  - R. Public Roads
  - S. Public's Right To Know - Warnings
  - T. Inerts and other Trade Secrets
  - U. Conflicts - Unreliable Testing, Sampling
  - V. Empirical evidence - people exposed
  - W. No Data being collected
  - X. Private Doctors and Public Health Care Uninformed
  - Y. No way for people to protect selves and property
- X. Risk Management
- A. Basically illegal, immoral and unethical
  - B. Arbitrarilly assigning people to death or harm
  - C. Can't make decision that negatively effects public
  - D. Can't make decision for someone else
  - E. Can't pay workers extra to sell body and soul
  - F. Public Dosen't give consent to Harm
  - G. Economic Benefit for few, Harm to Many
  - H. Since When was Murder for Economic Gain Legal?
  - I. Don't Add Up All Cost to All People Affected
  - J. Don't Add Up All Costs to Environment
  - K. Our Bodies Belong to Us
  - L. Our Health is Our own
  - M. Reproduction is our right and our responsibility
  - N. Animals have rights to life and health
  - O. Plants have rights to life and health
  - P. Planet has right to exist undamaged by humankind
  - Q. Expense and difficulties of sueing by private ind.
  - R. Public Trust
  - S. Must include Hazard of manufacturing chemicals
  - T. Must include Hazard of Storing chemicals
  - U. Must include Hazard of Transporting Chemicals
  - V. Must include Hazard of Disposing of Containers
  - W. Must include Hazard of Washing equipment, clothes
  - X. EPA doesn't know all hazards of these chemicals
  - Z. Workers and Public doesn't know all hazards



### Position on DEIS Vegetation Management

Alternative C is the only alternative that eliminates two of the worst vegetation management practices currently proposed by the United States Department of Agriculture Forest Service for the Pacific Northwest Region. As the spokesperson for our group, Residents of Oregon Against Deadly Sprays, I would like to present our reasoning for choosing Alternative C.

Although this Draft Environment Impact Statement (DEIS) is about vegetation management, some comments about all forest practices and about modern approaches to problems are essential for the Forest Service decision makers' understanding of our position on the vegetation management DEIS.

It may seem easy and even logical to appropriate specific tasks to different governmental agencies - agricultural matters to the Department of Agriculture, forestry matters to the Forest Service, environmental protection to the Environmental Protection Agency and, so forth - but in reality this planet, its people, its plants, animals and all the substances that comprise the Earth are interconnected and therefore must be viewed holistically. If preserving the Earth and the pure environment that we inherited several hundreds of years ago isn't our highest priority - far above crops to harvest, timber to cut, and profit to make - then no decision we make will matter in any sense other than how fast we kill off our species or how thoroughly we poison the Earth.

We are not referring to the nuclear bomb, although that certainly would do the job with great swiftness and finality. Nor are we talking about the radiation we have increased by our manipulation of radioactive substances we bring up from under the surface of the Earth or we manufacture in various ways. We are not speaking of nuclear war or conventional war both of which are very effective and speedy at reducing human (and other) populations and at devastating vast expanses of our planet. We are referring instead to chemical warfare - chemical pollution and degradation of the environment.

Already as of the mid-1960's the lead the petroleum industry added to gasoline was found in the Antarctic (research I assisted Dr. T. J. Chow with at Scripps' Institute of Oceanography at La Jolla, California). DDT has been found virtually everywhere and it still persists. It's devastation still reigns. And now we have dioxin added to the list. The only known substance more toxic is plutonium. Even deadly botulism is tame compared to dioxin. We are not sure how long it will take for the dioxin already spread throughout our environment to break down; estimates from 50-100 years have been suggested. Some propose even longer. Each molecule of dioxin is like a deadly timebomb, capable of creating tragedy if it enters the human body via any route - in our water which is innocently

used for drinking, bathing or cooking, or adhering to a dust particle unknowingly inhaled, or eagerly ingested with our food. Billions of dioxin molecules are already in our environment because of widespread chemical applications in forest or agricultural settings, or because of paper treatment processes currently in use. Billions more dioxin molecules will be added to our environment unless we stop using the chemicals known or suspected to contain them.

Only one molecule of some of these more toxic chemicals is needed to initiate a cancer. Not the whole allowable amount that the EPA has said will cause minimal risk to people who are exposed - but a mere molecule. One in every 4 people on the face of the Earth can expect to get cancer. Most will die from the cancer even though the doctors will try gallantly to cure them, and in the process will put the patient's bank account in the red. The patients will suffer miserably before their end will come. Their families will need them. Their families will want and love them dearly, yet be helpless to save them. Why? Why allow this? Why add to this? For the profit of a pesticide company? For the profit of a lumber company? Or a helicopter spray company?

It is well known among health organizations like the World Health Organization and among cancer specialist like Dr. Samuel Epstein that most cancers (between 80-95%) are chemically caused. We are not helpless to change that! The "cancer virus" did not cause these cancers. The "cancer virus" did not kill these people. The chemicals did! Viruses, bacteria, yeast, fungi and "germs" are scavengers feeding only on the dead or damaged tissues. Even Louis Pasteur said that! He observed that he had to bruise the grapes first before anything could grow on them thereby converting the grape tissue to other products like alcohols and gases. Natural processes always work in a fashion to return substances to the Earth or to break complex substances into simpler components which can be used by other organisms, the recyclers. This is an essential part of the life-death-life cycle. Living undamaged cells, tissues and organisms, however, have a driving force to protect their integrity, their living nature. Through evolution (or through creation) cells have developed the means to protect themselves from "germs". Therefore "germs" cannot attack normal healthy cells. "Germs" are scavengers, recyclers, not invaders. But since chemical insult is very new (only 100 or so years old) organisms have not had much time to respond to the new crises. Because these humanmade chemicals are so foreign to biological systems, and because they are so very deadly, cells may never be able to repair or prevent the damage wrought by these toxic chemicals.

So "modern" chemical solutions to narrowly defined problems have doomed most of us to untimely, painful, unnecessary deaths. Many millions of people will suffer and die from bodily

dysfunctions like heart'attack, stroke, heart failure, emphysema, muscular dystrophy, multiple sclerosis, kidney failure, liver disorders and 1000's of other human diseases. Even if people don't die outright, they will suffer lives of pain, disappointment, and unfulfillment. These are the real costs of chemical pollutants in our food, air, water, land and over the planet at large. This is the real cost of chemical use in forestry and agriculture!

That may not even be our final demise. We presently have a serious reproduction problem that is not well known to the public. Only 25% of all pregnancies produce live babies. The other 75% are lost, mostly in the first 3 months. This is a real waste of reproductive energy and a huge drain on the mother's health. This high rate of reproductive failure doesn't even take into account all the couples who are too infertile to even get to the point of conception! The Forest Service may think, erroneously, that this doesn't matter since the world has so many people already, but this reproductive failure rate will make a huge difference when most of the human species are dying prematurely or becoming dysfunctional at a very young age.

The current terror is AIDS (Aquired Immune Deficiency Syndrome). We feel so powerless against such a deadly disorder, yet most likely it will come to light that this, like so many other immune system diseases (leukemia, cancer), is also caused by humanmade chemicals.

The decision to stop using chemicals (herbicides, insecticide, rodenticides, fungicides, chemical fertilizers and animal repellents) in our public forests would be one of the long needed, desirable changes in forest vegetation management as well as one of the best solution to a major long-term, global problem with respect to environmental pollution arising from the toxic humanmade chemicals used in forestry.

The other major vegetation management change that is necessary is to stop all intentional burning of any vegetation or slash. This is the second reason we have endorsed Alternative C.

Slash smoke is toxic enough without adding herbicides to it. Any vegetation being burned creates smoke which humans and other creatures are far better off not breathing. Sprayed vegetation burns even faster and hotter. The herbicides and any other chemicals applied go up in the smoke and in the intense heat of the fire can change into even more toxic substances than the original formulas. Wherever you can see or smell the smoke it is present, obviously, and can damage lung tissue of any human or animal breathing it. It also settles out of the air eventually onto the land, onto the plants, into the water or dissolves into rain to form acid and toxic rainfall which furthers the spread of the pollution and of the potential harm.



Tissue and cell death in human and in animals occurs under any circumstances where there is reduced available oxygen or where there is an elevated level of competing molecules which can lock into our hemoglobin's oxygen-binding sites. Cell death in many cases causes permanent damage and in any case causes undue stress to biological systems.

Purposely setting fires is biological suicide and a grave insult to the environment especially if the smoke also contains chemicals. We do not believe that setting fires prevents wildfires as well as proper forest maintenance would. We are aware that clearcutting, and herbicide use to reduce what the Forest Service refers to as "competing" and "unwanted" vegetation causes the forest understory and eventually the upper canopy to dry out and heat up. The increased heat of the air over land treated this way reduces drastically any chance of precipitation from air masses during the times closest to our most characteristically dry season (late spring, summer and early fall) in our Pacific Northwest region. This further dries out the forest lands. Thus, these current or proposed forest practices actually increase the chance of wildfires and subsequent losses.

Clearcutting is one of the current forest practices which we mentioned needs to be discussed in order to clarify our position on vegetation management. Clearcutting which is done for expedience and short term economic gain, mostly of the timber companies, is the very worst way of managing our timber supply. It is equal to the most catastrophic event the forest could possibly experience. The only thing we could imagine equal to it would be the devastation by volcanic eruption similar to the eruption in 1980 at Mt. St. Helens. And as with a major catastrophic event of that magnitude, the forest must begin all over again, from ground zero, with the first species of plants taking hold in the beginning slowly rebuilding the soil. Step by step, the ecosystem progresses through a gradual succession of plant and animal communities until, at last, the conditions that can support a conifer forest are met and a climax forest is again possible. This may take 10-100 years depending on the extent of the original devastation and on other factors surrounding the recovering area.

Industry, society and the Forest Service lacking proper appreciation of these cycles and lacking patience, tries to sidestep this complicated, slow process. Fires are intentionally set to great bulldozed piles of debris which have been doused with chemicals totally foreign to any living ecosystem. The heat is intense. The chemicals are unmerciful. Then into this wasteland, where nearly all biological life has ceased, the Forest Service plants baby trees of a climax forest, alone, unprotected, and unsupported by the delicate ecosystem that is necessary for their particular biological systems. Is it any wonder that they fail to grow into the magnificent trees that once stood on these sites now laid to waste by poor forestry

practices?

Then the Forest Service blames it on the "competing" vegetation, salmon berry, thimble berry, blackberry (even though it has been demonstrated that these plants offer needed shade in the summer, frost protection in the winter and deer protection year round) or they blame it on the deer who are forced to eat the young trees for lack of anything else left to them in their habitat. The forester then sprays on more herbicides to "release" the trees from these soil building, ecosystem-restoring protective plants which they call "unwanted competing" vegetation and the young trees are laid prey again to a hostile environment of the forester's creation.

The trees need fertilizer to grow faster, the foresters say, so they burn them with chemical fertilizer destroying the delicate microbial and fungal balance of soil which was trying to recreate the natural system that would have normally fed the young trees. Soil fertility is gone. Lacking necessary humus content, the moisture retention capabilities of the soil are shot as well. The site is miserably hot and dry for lack of protective shading of the ground by the understory and ground cover, or shading from a large canopy of mother trees (of any species, alder, maple, fir or cedar). The hot air rising from the slope dries any rain up in the air above and no rain falls on the parched trees. The hot dry bare soil is allowed to blow away, and when rains finally do come, it is vulnerable to erosion and mass wasting in a way that Nature would never have allowed. Out of impatience and greed, society has required the caretakers of the forest to create a hell for a forest nursery bed!

The trees that do manage to survive this torture never become what their ancestors once were. Second growth trees, which we will define as any tree that humankind planted in the last 200 years or any tree less than 200 years old even if planted naturally, when grown under such adverse conditions are weak trees with soft heartwood, good mostly only for pulp. So at last the Forest Service, responding to pressure from the timber industry and the chemical manufacturers, has not in fact maintained a sustainable resource. It is not sustainable under these current or proposed forest practices and it is not the same resource we started with 200 years ago.

We are suggesting that, from this point on, clearcutting cease and selective thinning begin. Dare we suggest also that the only low impact, ecologically and environmentally sound type of timber harvesting we know of is horse logging. Fewer large graveled or paved roads would need to be built. The horses could pull logs down narrow logging skid roads to the presently existing roads suitable for modern day log trucks. This would not necessarily replace anyone's job, and would still use most of the present day equipment and technology but in a



different location. We maintain logging operations would become significantly more safe with selective thinning and with horses pulling the logs out of the logging sites. There are still many knowledgeable and skilled horse loggers and old time thinners around to help with the conversion and the retraining.

We further maintain that old growth forest (defined correctly) is an endangered ecosystem and will probably never grown again as they once did before the onslaught of humanmade chemicals and pollution impacted them. If we could learn to approximate the natural steps of reforestation; if we begin selectively thinning instead of clearcutting, if we stop the spraying and the burning; then the quality of the trees we are tending may improve sufficiently enough to believe we could grow comparable trees. Then, and only then, could we consider harvesting small portions of our old growth forest. But until such time, we must stop all harvesting of all of the remaining old growth! For, when using a proper definition of old growth, we realize how shamefully little is left! Just as the time came to protect the whale, so must the time to protect the whales of the land, the old growth trees, be recognized and heeded.

Trees and forests are so special, yet looked at merely as a timber resource, their wholistic meaning is lost. They provide most of the oxygen that we humans and animals need to survive on Earth. They provide cooling of the air masses that flow above them and through them and assure us of proper levels of moisture in the air and of rainfall. Lest we be tempted to forget these facts, please take a good look at Ethiopia. Ethiopia once had vast forests until about 80 years ago. Ethiopia was not only a self-supporting nation but also an exporting nation. Once the forests were cut, the ground and air masses above the ground were heated up significantly to dry out the moisture in the air. The rains stopped. The crops and animals died, and starvation set in. The process of desertification is swift and unmerciful. It is tedious, expensive and depressingly difficult to reverse.

Poor agricultural practices and forest practices are quickly pushing us to the edge of that cliff. We must stop overcutting our forests and stop clearcutting all together. Immediately, we must stop spraying toxic chemicals on and setting fire to the precious organic matter; so vital to soil balance, soil fertility, moisture retention and to ecological balance. We also must stop spraying our agricultural fields with herbicides and other toxic chemicals. Burning crop residues and weeds, as well as over cultivating fields must cease too. All these practices create mini deserts which spread and join to form larger and larger areas of overheating and overdrying. The Northwest may seem like a very unlikely site for a desert, but Ethiopia was once (fairly recently in Earth time) forest land too.

The Native American tribes of the Northwest lived in this region for 1000's of years without impacting the environment negatively the way we newcomers have in just the last 50 or 100 years. Their whole culture was filled with total awe and reverence for the environment (Nature as we may know her). The Earth was known to them as Mother. The sky was Father. They did nothing knowingly to harm their Mother or their Father. They dared not to, as they recognized that the earth and the sky gave them life, and without them they could not exist. They were masters of balance between themselves and their environment, and between the elements of competition and cooperation. Their whole culture, with its sacred stories (Mythology, not to be confused with current improper slanderous use of the word myth), rituals, ceremonies and exquisite oral tradition, was built around this delicate balance with Nature and reverence for her.

We should take note and learn from them while we still can. Our whole culture, on the other hand, seems to be based on competition above cooperation, on the perceived right and need of humankind to manipulate Mother Nature for whatever purpose people can dream up, and the belief that we are ultimately so smart that, whatever trouble we get ourselves into, we will be able to think our way out of. And, above all, science and economic gain (for the clever few) are God and the Final Word!

So within a very short 100 years we have brought ourselves to the brink of extinction. We now have a very big bomb to blow up the Earth and ourselves with. And we have very toxic chemicals to poison ourselves and our Mother with. And are we ever proud of our cleverness and power!

However, we are all connected. The world is connected by the flow of air and water and sometimes by the flow of soil, rocks and lava. Gases and vapors move around. Fishes swim, animals walk, birds fly and so on. Humankind seems to know no limit for our modes of travel. Smoke blows in the wind. Toxic chemicals are washed downstream. How can anyone deny our interconnectedness?

When economic gain for a powerful few is at stake, our interconnectedness is purposely denied. The herbicides will land only on their intended targets, the pro spray people say, do their deadly deed and then magically disappear. Poof! Even if there weren't enough scientific evidence to the contrary, which there is, empirical evidence testifying to the devastation and the harm, gathered by people living next to these ludicrous activities is overwhelming! But individuals don't count for much, taken one by one, next to the big money to be gained by the chemical companies, the spray companies and the timber companies.

Jobs will be lost they cry! Jobs... are something

people can train for, and apply for. People can choose to change their line of work. They can retrain if they need to in order to provide different opportunities for themselves. People do not die because they don't get a certain job. But when toxic chemicals or toxic smoke causes one to lose one's life, one is dead! And if one only loses one's health, one may not be able to work in any sort of job again and most likely will have to resign to an unhappy life of dependence on someone else or on the government's welfare system.

The air connects us all. The airshed has no sharp permanent boundary. It does not stand still for hours during the forest spray operation, dutifully preventing drift of the toxic chemicals. It does not stand still for days or weeks while the spray magically vanishes. No, it moves on to the neighbors land, allowing time for the chemicals to drop to the ground, time to drop into the neighbor's spring poisoning their water supply, then moves on to the patch of beautiful foods grown lovingly for the neighbor's family, gently blowing over the trees in the orchard, caressing the children who are playing in the swings under the trees, giving them and all in it's wake the kiss of death.

The once sweet pure waters now laced with poison moves, ever obedient to the law of gravity, down the hill into another neighbor's reservoir, then spilling into a small pond built to water the neighbor's family cow and some playful lambs, onward to the little stream that the children play in every hot afternoon, on to the farmer's favorite fishing hole where Sunday dinner is usually caught, ever onward, swirling around the velvety muzzles of the deer who have snuck down during the hot afternoon to quench their thirst, the water always moving on to lower and lower elevations, running noisily into the lake where city and country folk frolic all summer soaking in the cool poisoned water, then onto the sea where the oyster beds are, the tuna and sole. Oh surely the poison is gone by now! How do we know? Because the chemical company representative told us so!

And where does the smoke from the intentionally set forest and slash fires go? Does the air stand still while the smoke, which often contains toxic sprays, magically disappears up into outer space never again to be seen or felt by humankind? What an outrageous lie! Why then do we see it? Why then do we smell it? Why then does the Forest Service have smoke management rules? Why in Lane County, Oregon is there an agency called Lane Regional Air Pollution Authority? Obviously because the smoke and chemicals in it do move with the air currents. How, then, do the smoke and chemicals in the air ever get out again? And where do the go? By settling down onto the land - someone else's land, not the Forest Service's land. By settling onto the foliage of trees, vegetation and crops - someone else's trees, vegetation and crops. When air laden with toxic chemicals and smoke



contacts moisture in the air, it becomes toxic and acid rain or fog, covering the land, plants, animals, people and water with corrosive chemicals and particles. Some of the particles are large enough to see floating on the water or adhering to the leaves, leaving visible evidence of their invasive presence, visible evidence of trespass. The smell of smoke alone is evidence of trespass!. The toxic air, food and water is then consumed by humans, animals and plants which try hard to filter out the poisons, often suffering great stress and damage in the process. Does the Forest Service own this water, air and food too? Isn't the Forest Service responsible for the damage wrought by the smoke and chemicals in the smoke? They did set the fires didn't they? Aren't they also responsible the damage done by the chemicals they intentionally applied to the forests, the chemicals that drifted and vaporized and wafted about in the wind landing eventually somewhere else? Does the Forest Service also own all the somewhere elses?

Now we are taking about violations of the Clean Air Act, the Clean Water Act, the Safe Drinking Water Act, the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA), the National Environmental Protection Act (NEPA), as well as Strict Liability, and Public Trust. Have they not also violated the Constitution of the United State whereby it says in Amendment XIV [1868] Section 1.

"All persons born or naturalized in the United States, and subject to the jurisdiction thereof, are citizens of the United States and of the State wherein they reside. No State shall make or enforce any law which shall abridge the privileges or immunities of citizens of the United States; nor shall any State deprive any person of life, liberty, or property, without due process of law; nor deny to any person within its jurisdiction the equal protection of the laws."

In Wasington, Oregon and California you are also violating Organic Farm laws. In Oregon you are additionally violating the Constitution of Oregon which guarantees Oregon residents safety and peace.

A nonprofit organization in Oregon, Oregon Tilth, currently certifies organically grown products, requiring farms and processing facilities to adhere to strict standards which do not allow any chemical fertilizers, chemical herbicides, insecticides, fungicides, rodenticides or repellents to be used on certified properites or products. Many other chemicals and processes are also restricted or forbidden by these standards. The standards therefore necessarily forbid trespass by any such chemicals onto certified properties by any source, private or governmental. Under many laws prohibiting trespass or condemnation without consent or due process of law and or without proper accompanying fair payment for the property trespassed upon

or condemned by chemical trespass, these certified properties, as well as any other private properties, are strictly protected.

Our bodies are protected against trespass by chemicals under Toxic Tort laws. Under these laws monetary compensation for all damages suffered by any individual (including long term damages for as long as the chemical's presence or effects last) as well as legal fees are awarded to the victim (although, most victims would much rather have not been victims in the first place and would have much preferred their health be left intact). The offending party is required to pay the costs associated with their damaging action (trespass and tort from chemicals and/or smoke) whether it be a private offender or a government agency like the U.S. Forest Service.

We also found it interesting that in the DEIS Summary page 17, it was stated that "for the use of prescribed fire, extreme care will be taken to: avoid intrusion of smoke into state-identified sensitive areas". What area in the state, any state, is not a sensitive area in regard of the toxic effects of smoke, especially smoke containing toxic chemicals? We know further that smoke, that would impact large towns or cities, is managed in such a way as to try to avoid these areas. The less populated areas can be choking and dying from the toxic smoke just so long as larger concentration of populations are spared. Why? Is that because there are no official monitoring devices (only unofficial rural resident's monitoring devices: eyes, noses, lungs and bodies) to measure the smoke intrusions in rural areas? Could it be that if the smoke from the Forest Service's slash and other intentional fires was allowed to impact Eugene, Salem, Portland, Seattle and other highly populated areas the way it is allowed to impact less populated areas that the people would rise up in masses and demand that the Forest Service fires be immediately put out! Wouldn't readings of 300 or more on the pollution index look just terrible in Eugene, Oregon! The United States government would even have something to say about that! Yet hundreds of thousands of people dispersed throughout the Northwest Region are forced to suffer the damaging and depressing effects of intentional forestry and agricultural burning year after year. Individuals, taken one by one, don't count in the DEIS.

The same mysterious pattern of non concern, or should we say selective concern, appears again in the DEIS in regard to water protection. Summary page 16 - "If herbicides are used, these specific measures will be implemented: downstream water users and adjacent landowner will be notified of planned use of herbicides". (It doesn't even include mention of the many other types of chemicals the Forest Service uses - also known to have toxic effects on the environment and on humans!) It does not say that the Forest Service will guarantee that their chemicals will not trespass into these water supplies!



Later in Section II, page 82 the DEIS states that "5. Areas used for mixing herbicides and cleaning equipment shall be located where spillage will not run into surface waters or result in groundwater contamination. Whenever practicable, mixing areas and heliports will not be located within domestic/municipal, fish hatchery, or irrigation supply watersheds." What kind of watersheds are left? Later in Section III-20 the DEIS goes on to state that "The National Forests occupy 23 percent of the land in the Pacific Northwest, yet 44 percent of the region's water supply originates on National Forest land". After looking over the maps on pages III-2 and III-3, it is very apparent to us that the 44 percent of the region water really translates to more like 90-95 percent since the National Forest occupy a significant portion of the land around the major river drainage basins. Once the chemicals enter the watershed, any watershed, they may ultimately be transported downstream into any area connected by that downstream flow of water. Aren't they all eventually connected by major rivers? Don't the rivers eventually run to the sea? Thus, spray activity on National Forest land almost always affects someone's water supply, even municipal water supplies eventually. (It certainly affects the fishes' and the deer's water supplies.)

And even though the DEIS proposes maintaining various no spray buffers next to different classes of streams, none of them guarantee that the sprays will not end up in the water. Even if the wind is not present during aerial spraying, the rotor of the helicopter creates a significant turbulence sending the chemicals many hundreds of feet in all directions. Cold air, cascading down the slopes in the morning and again in the evening, sends the spray or the vapors, long after the helicopter is gone, down the hill to unintended and forbidden targets including streams. We know this is true because we can smell the chemicals several miles away. If a person can smell a chemical it is because it has entered their nose (and therefore their lungs and bloodstream) and has already trespassed into their body. If the chemical was not present, all we could smell would be pure beautiful mountain air! The drifting chemicals and vapors are then able to pollute bodies of water several miles away from their sites of application. Many times rain comes after spray has been applied, washing the vapors and chemicals into the streams, making buffers even more inadequate. Many of these chemicals are known leachers and end up in the groundwater, therefore spreading their deadly effects even farther.

Under the buffers allowed, the Class IV (intermittent) streams, which usually arise from small springs that often supply water to individual residences, will be less well protected than the larger municipal water supplies. What is it about the masses of people who are bunched together in cities that grants them protection of their rights while people in smaller bunches

(families and small communities) somehow lose the rights granted to them by the United State Constitution, and by state and Federal laws? Could it be that the .Forest Service is only held accountable when the monitoring of municipal water supplies shows pollution traceable to their operations? Is it because no one is monitoring the rural water suplies? Or is it related to the number of people who would sue them for damages if a municipal water supply was contaminated?

What about the other uses of water? We know what happens when humans and animals drink water poisoned with toxic substances. But how else does this chemical laden water affect us? We cook our food in it. We process our food with it. We rinse our food with it to "clean" the food. We "clean" ourselves with it. We "clean" everything with it, our clothes, our houses and our eating utensils. All with poisoned water. We even love to soak in the cool lakes and reservoirs in the heat of the summer, totally oblivious to the poisons entering our bodies through our skin. We water our lawns and yards with it. We run barefoot in the park's lush grass absorbing more poisons through the soles of our feet. Our gardens and orchards drink heartily of it, incorporating the deadly substances into their cells. Joyously we eat our garden bounty for dinner, unaware of what we are actually eating with our food.

Most of the acute, chronic and synergistic effects of these toxic chemicals are not well-documented in humans. This is partially due to the fact that doctors usually lack any training in toxicology. It is also due to the fact that the manufacturers of these toxic chemicals really don't want the public to know how deadly their products are for fear that the public would cease buying them, or equally worse, start suing them for damages, en masse! Thus, it is not likely that accounts of the effects of these toxic chemicals will be made available for many years. Cancers and degenerative diseases take years to show up in populations. They take even longer to be traced to their sources.

Finally, if alarming facts do come to light, the EPA gets concerned and studies the issue further which takes several more years. Then industry, the manufacturers and the users of these toxic chemicals, protest any ban on the basis that they will loose money, jobs and their (undeserved) huge profits. And besides, they bawl, "we don't have any other chemicals to use in its place"! (And nobody who remembers how things were done before the Chemical Revolution is still alive, thanks in many cases to the toxic effects of the chemicals, of course). They debate for a few more years and if humanity and the environment win this fight for life, the chemical in question (only one of many thousands) is banned. Meanwhile thousands, maybe millions of innocent people die horrible, needless deaths, or suffer debilitating health effects. Consider DDT, Dioxin, Chordane and

Dinoseb, and how long it took to do something about them. Even when people stop using these chemicals, it takes decades for the chemicals to disappear from the environment or from human tissue samples! Unscrupulous people hide stashes of these banned chemicals and still use them secretly. In any case, what is banned in the U.S. is not usually banned anywhere else. Not only do the people and lands of other countries continue to suffer the effects of these U.S. banned chemicals, but the U.S. buys back the chemicals in the form of contaminated imported products! Many chemicals known to have serious health and environmental effect are still in widespread use. Bans on them are still many years away. The process of protecting humans and the environment is further hampered by the lack of honest, accurate scientific data for most of the over 6000 chemicals bogged down in the EPA's registration process.

It should be noted also, that the EPA does not register these chemicals strictly on the basis of their safety, but on the basis of cost/benefit factors and risk analysis. In fact it is expressly forbidden by law to state or even to imply that these chemicals are safe, even if they are being used as directed! What does that say to the public? If no one may state or imply that they are safe, doesn't that logically imply that they are, in fact, "unsafe"!

The EPA's equations of cost/benefit and risk analysis do not include all the costs to the public. They do not include the billions of dollars spent in medical bills by people trying to regain their health after exposure to these toxic chemicals. It does not compensate these victims for lost time at work or for lost jobs or for lost ability to work. It does not include compensation for lost life, even if one could assign a dollar figure to the value of life, which one can not! It does not include the costs to parents of childcare or of time spent away from their jobs to take care of an ill child. There are no funds set aside in the equations of cost/benefit to take care of the medical costs, the extra childcare costs, the special physical therapy, or the special education for the deformed children born to parents exposed to toxic chemicals (the father's health and genes play a part as well as the mother's). It doesn't pay for rest homes for the elderly people whose bodies have nearly given up under the chemical attack perpetuated by industry, forestry and agriculture. It doesn't include the costs of individual and family financial losses or bankruptcies brought about by expenses due to chemical trespass or toxic tort. It doesn't include the expense of lost homes for these people so financially stressed. Nowhere can one find in the EPA's equations the compensation for large medical policies necessary to pay for enormous medical bills incurred by chemically damaged people.

The EPA cost/benefit equations, furthermore, do not include the damages to the land and to the people living near the



chemical plants that manufacture these toxic substances. It doesn't allow for the costs of cleaning up spills of these chemicals in transport from the manufacturer's plants to storage facilities, or to stores or to their locations of use; the fields, forests, buildings, roadsides, rail yards, and homes. Nor does it account for the cost of cleaning up or at least containing the chemical containers at their final burial grounds (some legal disposal areas, others not). Where is the toxic substance "Superfund" mentioned in the EPA's analysis? It does not make note of the costs of cleaning up the air, the water and the land, even if cleaning them up was possible, which it may not be. In fact, it doesn't even include costs for burying the toxic chemicals' victims!

The real costs of manufacturing, transporting, storing, and using these dreadful humanmade chemicals are enormous, far outweighing the supposed benefits. And if any one is to bear these costs, let it be the people manufacturing these toxic chemicals, profitting from their sale, perpetrating their use, and not the innocent victims and the vulnerable environment!

Not everything that we humans have learned to do to our environments has necessarily benefitted humankind or the environment. So we may ask, what does toxic air do to us and our environment? Smoke, even from relatively clean sources, is known to be harmful to humans and animals. Most Native American tribes who lived in enclosed dwellings (hogans, tipis and lodges), depending on the warmth of fires to help them survive, had lung problems. Lung diseases were believed to be one of the primary causes of death at relatively young ages for these people. This was not smoke laced with chemicals but just smoke from naturally occurring combustible materials like wood and dung.

Since the introduction of cigarettes, cigars and pipes into widespread use, the damage to lungs and other tissues of the body have been made increasingly evident. Now, it is known that, not only the people doing the actual smoking, but also the people in the immediate airshed suffer, almost equally! How many cigarettes is one slash pile equal to, we wonder? At least with cigarettes, cigars and pipes we have the choice of whether to take up this suicidal habit in the first place. Fortunately now, our rights as breathers are being protected from the smoker's smoke. But what about our rights as breathers with regard to Forest Service's smoke?

Amazingly enough, it is now known that humans can extract nitrogen from the air and make protein from it. But only from clean air, the kind one can usually find in the forest and in the high mountains away from human pollution. If that seems too shocking, at least remember that plants too also need air - clean air. Plants exchange gases with the air in the process of photosynthesis during the day in the presence of sunlight. If

the air is very dirty with toxic chemicals, smoke, or particulate matter, the plant tissues are greatly hampered. Reduced sunlight, during periods of smoke intrusion, reduces photosynthesis and correspondingly reduces growth. Plants which are additionally hampered or damaged by toxic or acid rain not only suffer stunted growth but also are more susceptible to disease and insect damage. It has been shown that gypsy moths prefer pollution damaged tree foliage over undamaged foliage. Blights attacking many different crops are spreading, currently, through our poorly ventilated valleys (as, for example, through the Willamette valley, a very poorly ventilated valley, indeed). Blight always takes the weakest plants first, but with the poor agricultural and forest practices, this may mean whole orchards, whole tree stands or whole fields! Creatures and organisms like gypsy moths, deer and blights are actually the best forest and crop managers we have, always taking the weakest, most unprotected plants first, thus selecting for the strongest plants and the most protective ecosystems. What humankind has to realize is that we are the ones who made the plants weak in the first place! With our chemicals, our smoke, our burning, our pollution, our over cultivation and with our monocropping, we have disturbed the balance, leaving the plants weak and unprotected. There are many lessons here for us. Lessons we must learn if we and the Earth are to survive. Nature strives to never leave ground bare. Nature never destroys organic matter, she only recycles it. Nature never monocrops!

And how does our system of agriculture and forestry fare? Not too well, we observe. Stunted plants often do not mature properly and sometimes do not reproduce successfully. And they surely make poor crops for harvest, often maturing too late in the season, if at all. So now the smoke and chemicals are damaging our food supply and our timber supply as well as our air, water and our bodies.

Smog, smoke and chemicals in the air affect our sense of well-being. The loss of the view of the beautiful landscapes and vistas around us is enough to truly depress anyone! But added to this, the additional nightmare of knowing that the intense heat of the fires intentionally set by the Forest Service or the sunlight itself can transform these already toxic chemicals into even more toxic forms, is overwhelmingly frightening. Add to this the knowledge that there is a direct correlation between suicide and crime rates, and high levels of pollution.

What of the victims of previous exposure to these toxic chemicals and toxic smoke who were exposed while living on their own private land nearby (downwind or downstream from National Forest, BLM or private timber company land). With their lungs, livers, kidneys, immune systems, nervous systems and other vital systems damaged by these chemicals (many times in irreversible



ways), they must for sake of saving their lives, avoid all future exposure. How is that possible with the Forest Service, BLM, private timber companies, and most of agriculture all spraying like crazy? Who gave any of these people doing the spraying the right to endanger anyone else's health or life in the first place? As directed by knowledgeable toxicologists and doctors, these spray sensitive people (made spray sensitive by previous nonconsensual exposure) must avoid chemicals in their food, in their water, in their air wherever they may be. in their homes, cars, places of work (if they are even able to work, which in many cases they are not), in their soaps, shampoos, clothes and on and on. It is doubtful that they could safely travel anywhere without risking exposure to additional chemical insult, so they are often homebound. Most often they have to seek a place to live in the country away from the high levels of all types of pollution in the cities. They have to get as far away from sources of sprays as possible. They avoid places where chemical agriculture is practiced. Industrial activities and mills also have to be avoided by chemically sensitive people. So what then is left to them? For the past few years, thanks to a lawsuit brought against the U.S. Forest Service and the BLM by the Northwest Coalition for Alternatives for Pesticides (NCAP), spraying was temporarily halted in millions of acres in the northwest. Although the United States Constitution and basic human rights guarantee us the right to live anywhere we wish within the boundaries of U.S.A. somehow the rights of people who have been victimized by chemical mania are denied.

Chemically sensitive people suffer from individual exposure incidents that they may be able to recollect, as well as from exposures more subtle yet accumulatively just as damaging. And the synergistic effects of the chemicals take their toll as well, even though they are harder to figure out and therefore harder to trace. Since many chemically caused cancers take anywhere from 5-20 years to develop to the point where they may be detected, chemically sensitive people live with the ever present, realistic fear of cancer, a known outcome of exposure to some of these herbicides and other pesticides.

People already damaged by toxic chemicals, or suffering from cancer, allergies or asthma are advised by doctors to avoid any chemicals in their food, thus they depend on certified organically grown foods. Often they grow their own food to be as certain as possible of the crop's purity. To destroy their source of clean food or to destroy the purity of their land, water and air, with which they are attempting to provide for themselves, is something akin to murder. Deforming an unborn child with toxic chemicals is a cruel and criminal act. Poisoning a baby in the womb is murder! Nothing less!

Don't these people also have the right to enjoy campgrounds, lakes, beaches and all "public" facilities including

public roads without fear of exposure to deadly chemicals? Or did they somehow have those rights taken from them too just like their health? Aren't they entitled to participate in governmental processes open to the "public" without having to risk their lives by just being in a public building that may have been sprayed for termites, cockroaches and ants? Shouldn't they be able to walk up to the public building without suffering exposure to toxic herbicides which have been applied to the grounds around the "public" building. Can they be excluded from "public" concern simply because someone trespassed with toxic chemicals into their bodies and robbed them of their health?

The people working with the toxic forest and agricultural chemicals and with the smoke from forest and farm operations are not the only ones damaged. We were amazed by the DEIS risk indexes listed in the Summary, page 18 which showed that the Forest Service recognized that the risk was also there for the public. But we were horrified that the DEIS implied that this is acceptable. The people who make up the "general public" have not given their explicit consent to these risks! We are totally amazed at the statement on that page - "Two groups-- forest workers and the public--face exposure to herbicides and fire smoke, (see Figure S-5). Worker exposures are far greater in quantity and duration for both herbicides and smoke, which is why these risks (as a group) are roughly equivalent to the risk to the rest of those affected (the general public)". What on earth could this possibly mean? If the general public is exposed as much as the person working for the Forest Service in the woods, in the thick of the sprays and the smoke, and therefore having the same risk index, can the general public draw pay appropriate for that risk category from the Forest Service? If we can not derive the same pay, the benefits, the health insurance and life insurance from our having to take the same risks right along with the workers employed by the Forest Service, are we then the slaves and hostages of the United States Forest Service?

Are the fish in the streams, rivers and lakes your charges also, to hold prisoner in the Forest Service's experimental waters? Or is the Forest Service supposed to protect them from all harm recognizing their place in the ecosystem? Are the deer, the bears, the cougars, raccoons and squirrels the Forest Service's to hold hostage in a toxic chemical warzone? Or were the foresters supposed to show compassion for fellow creatures on this planet? Are the salmon berries, salal and blackberries all evil plants to be destroyed by chemical torture and fiery death? Or was it a terrible mistake, a case of bad labels, mistaken identity?

Where are these issues in the Forest Service's equation of cost/benefit equations? Where are the human victims and their

losses in the equations? Are they all swept under the "unavoidable adverse effects" rug? If you dare to include the real cost of damages to human health, human life, animal suffering, plants losses and all the many other environmental damages, how cost effective would herbicides, other toxic chemicals and intentional burning be?

Can we allow management of one resource to be done in such a way as to destroy other equally valuable resource such as human health, human life, wildlife, plant and animal diversity, genetic integrity, clean air, pure water, safe food, and a sustainable, liveable environment?

The way to know how to best manage a irreplaceable resource like a true old growth forest, without destroying every other ecosystem, is to spend a week or two in one. Don't bother taking extras or luxuries. Just go with the basics. Spend real time listening, watching, smelling, tasting and feeling everything you can. Soak it up. Immerse yourself in the reality of this intricate ecosystem. Learn all you can but remember it with your heart as well as your mind.

On your way back to "civilization", stop at a recent clearcut. View a recent slash burn. Then visit a released conifer stand. Allow yourself to feel the difference with your heart. Then, if you dare, visit a hospital. Try to console the mother and the father of a stillborn child or of a deformed child. Visit a person dying of lung cancer or liver cancer or a child with leukemia. These are the real life consequences of the chemicals and of the smoke. You will never be the same. And we doubt that you will ever make the same mistakes in judgement again.

Many of us have chosen a life dedicated to responsible stewardship of the Earth. This requires careful thought using a wholistic perspective. We choose to "live simply so others may simply live". We try to walk gently on the Earth as the Native Americans did. They were successful at using their resources without abusing them. We wish to imitate them, and other wise Earth stewards, so that we too may have resources in the future.

What natural processes have accomplished over millions of years, before humankind impacted the environment in a negative way, provide us with guidance. Nature is our inspiration and our path. We choose to farm without chemicals, to raise woodlots without chemicals and to raise animals, if we desire them, without chemicals. We live our own lives with as few humanmade substances that might be potentially toxic as possible. We are always looking for the most ecologically and environmentally sound alternative solutions to problems. With the human capacity for creative thought being as well developed as it is, we have faith that good solutions are just as possible as the potentially destructive solutions in all aspects of life



currently in use.

As environmentalists, we are dedicated to preserving the Earth for all beings. We hope that the people making the decisions for future Forest Service practices will know that we are trying to protect you and your children and your grandchildren just as we are trying to protect our own. We hope your grandchildren will have an old growth forest to camp in. We hope they will be able to know the thrill of seeing a great blue whale. We would like you to know we wish you and your families no harm just as we wish the Earth no harm.

#### About Residents of Oregon Against Deadly Sprays

Residents of Oregon Against Deadly Sprays, formed in 1987, is a fast-growing group of people who are dedicated to replacing environmentally destructive practices with environmentally sound solutions.

R.O.A.D.S. is doing educational work to inform the public of the threats to peoples' health and to peoples' lives posed by humanmade chemicals and by smoke. We are also doing research on environmentally sound solutions to problems currently being solved with applications of chemicals and or with applications of prescribed burning.

Our group is doing legal research into matters of peoples' right to know and of peoples' right of choice. We are quite able and willing to take legal action, if necessary, to stop environmentally destructive practices. However, we would prefer that decision makers would use sound judgement in making their rules, rather than relying on legal persuasion to be their conscience and guide.

We wish to work with the decision makers cooperatively and in friendship. Please feel free to ask us any further questions you may have.

Please address communications to:

Jan Wroncy  
R.O.A.D.S.  
Post Office Box 1101  
Eugene, Oregon 97440

#### About the Author of This Position Statement

In 1976, I received a Bachelor of Science degree in Biology from the University of Oregon. In the following two and one half years, I completed most of my graduate work toward a Masters in Native American Studies under the guidance of Dr. Barre Toelken. When I was pregnant with my son, I decided that

he was my most important goal and took a leave of absence from my graduate program, with no regrets. During the 1960's, I worked with Dr. T. J. Chow at Scripps Institute of Oceanography at La Jolla, California on lead pollution research. Later, with Dr. Gordon Goles at the Volcanology Center at the University of Oregon, I assisted with the preparations to analyze the lunar samples. While doing my graduate studies, I worked with Dr. George Carroll as a research associate during the research of the Old Growth Douglas Fir Canopy Ecosystem.

My visits to the Andrew's Experimental Forest in Blue River, Oregon combined with years of biology and Native American studies taught me a different way of looking at problems and gave me insight into more wholisitic solutions which are more in tune with Nature.

After personally witnessing samples which had been brought back from the moon, I became certain that humans, who were capable of going to the moon and back, were surely capable of solving less complicated problems here on Earth!

I knew, also, that solutions had to be sought soon, for the destruction of Earth's ecosystems and Earth's environment was escalating at an alarming rate.

After farming organically for 21 years (in fact, I have never farmed any other way!), I was sure that environmentally sound solutions for agricultural problems were not only possible, but vital to our survival.

As a victim of numerous nonconcentual exposures to toxic herbicides and to other toxic pesticides, I have become well versed in the destructive capabilities of these chemicals on human health and life. A toxicologist, here in Oregon, diagnosed me as a chemically sensitive person and advised me to never again allow myself to be exposed to chemicals! I was directed to eat only organically grown, chemical free foods and to make my own personal living space as pure as possible. Other doctors who are trying to help me recover from the damage done by these previous, nonconcentual exposures, have indicated that my liver may never function correctly again. I already had made certain choices in my life, having decided long ago to not smoke tobacco, to not drink alcohol, to not smoke dope, to not do drugs and to not even use any over-the-counter or prescription drugs, if at all possible. Regardless of my attempt to live a healthy, unpolluted life, others saw fit to take my choices away from me. I have dedicated what ever is left of my life to the protection of my family and of the Earth from these toxic humanmade substances.

Yours in friendship,

*Jan Wroncy*  
Jan Wroncy





P.O. Box 1026

000750

ROSEBURG AREA  
**Chamber Of  
Commerce**

Roseburg, OR 97470

January 20, 1988

James Torrence, Regional Forester  
USDA Forest Service  
P. O. Box 3623  
Portland, OR 97208

Re: Vegetation Management Plan

Dear Mr. Torrence:

The Roseburg Area Chamber of Commerce has taken an active role during the development of the vegetation management draft environmental impact statement. We responded to many of the requests for participation prior to release of the draft.

The Chamber has placed a high priority on this issue because the Roseburg/Douglas County area is heavily dependent upon the forest products industry for its very survival. According to the Oregon Employment Division, this industry directly provides 9,850 jobs, which account for 31% of the total workforce of Douglas County. The indirect employment created by the forest products industry is obviously substantial.

The Roseburg Area Chamber of Commerce represents over 465 business and professional firms located in central Douglas County. Our members employ an estimated 10,000 county residents and cover a broad cross-section of our total local economy.

We are concerned about vegetation management and other issues which affect the immediate and long term output of our national forests. As stated in previous correspondence, we are very concerned about the economics of forest management and the environment. We also believe that the level of hazard for herbicides is acceptable if used according to the directions and precautions provided by the manufacturer and approved by the EPA. We believe that burning is an important tool for forest management and is essential for hazard reduction as well as for preparing soil for new crops.

The federal lands in our area are already subject to substantial management restrictions as a result of wilderness areas and the national forest planning process, including proposals for set-asides such as the spotted owl. With these land use restrictions in place or pending, it is essential that the remaining lands be managed intensively with all tools including herbicides and burning.

After an initial review of the vegetation management plan draft, our Agriculture/Natural Resources Committee found that:

1. The potential impact of this document goes well beyond national

(503)672-2648

James Torrence, USDA Forest Service  
January 20, 1988  
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forest land management and long term timber supply. It will have significant long term effects on private forest lands and in agriculture and horticulture as well. Our agricultural resources in Douglas County provide nearly 1,000 jobs during the annual seasonal peak, and estimates by the Oregon State University Extension Service indicate over \$36 million in revenues were received by Douglas County farmers and growers during 1985.

2. As currently written, the draft appears to be practically unworkable with any of the alternatives because several aspects of implementation included in the draft, yet independent of the alternatives, are so restrictive.
3. If "last resort" language is included in the final EIS and the resulting record of decision, relative to the use of herbicides or any other tool, it could set the stage for a new "worst case analysis" battle.

These findings, and the following more detailed comments and proposals constitute the results of the complete analysis by the Agriculture/Natural Resources Committee. These findings were initially adopted on December 3, 1987, and approved with revisions on January 7, 1988 by the committee.

The policy statement and this letter were adopted as the official Roseburg Area Chamber of Commerce position at our Board meeting held January 19, 1988, by majority vote.

The Roseburg Area Chamber of Commerce supports a "B Plus" modification of alternatives by Oregonians for Food and Shelter for vegetation management in our national forests, as this proposed modification of Alternative B will emphasize preventive management while allowing use of the most appropriate tool for treatment of site-specific problems.

The "B Plus" enhancement will provide forest service professionals the flexibility needed to assure a stable, long term timber supply, while enabling effective rights-of-way maintenance, range improvements and noxious weed control in a manner which responsibly protects the public health, worker safety and the environment.

Implementation of the "B Plus" alternative will meet all reasonable public concerns, and do so in an economically feasible manner.

The Chamber cannot support any current or future alternative which will reduce jobs, reduce revenues to counties for schools and other local government services, reduce family incomes, or decrease long term timber production for our region.

The alternative chosen should incorporate mitigation measures, such as site-specific diagnosis and analysis, to ensure that all relevant data and information are considered.

We believe the environmental impact statement must provide a workable vegetation management program with adequate flexibility to deal with the tremendous differences in each of the 19 national forests. We are

# I/B Public Participation and Consultation

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concerned that too many assumptions are being made based upon a theoretical "average forest" which cancels out the individual extremes that exist in reality.

We disagree with the major concept of basing a technical forestry program on weak, subjective data -- public perception of herbicide risks and a qualitative risk assessment. This is contrary to other forest service regions and the data base required by law to register a pesticide with the United States Environmental Protection Agency.

Forest acres which have been set aside for timber production should be managed for growth enhancement as well as seedling survival. Promoting growth enhancement will help ensure a reliable and adequate future timber supply from a shrinking production land base.

It is unacceptable to predetermine that herbicides or any other viable vegetation management tool be used as a "last option" only -- regardless of cost, effectiveness, safety, environmental impact or risks associated with the other options. The best method or tool should be used, and its use should be based on site-specific data and be evaluated by the same criteria or standards.

Following you will find a number of specific points with regard to various portions of the draft EIS which are referenced for your convenience.

Again, the Roseburg Area Chamber of Commerce urges the decision makers this process to consider the economic impacts on our citizens and their families, neighbors, businesses, industries and the entire region.

We ask that you consider Alternative B, with modifications, the ultimate preferred alternative.

The actual risks of the chemical exposure with herbicides and other tools should be quantified, rather than expressed in relative qualitative indexes. (Page summary-20)

An objective analysis of exposure is needed for all of the tools, for example the exposure of chainsaw operators to exhaust fumes, or the risk of physical injury in the aerial application of herbicides. All tools should be compared on the same basis, to the extent that information is available.

There is concern about the validity of the information in the draft given the ratio of herbicides to fire; given their relative costs, and the ratio of overall vegetation management on the east side versus the west side; given the relative levels of forest productivity on the east side versus the west side. These ratios make little sense. We believe a considerably more thorough technical analysis is needed in the final vegetation management EIS than occurs here.

Comparing the risks between alternatives by evaluating the number of acres treated (Page II-25) is overly simplistic. Similarly, comparing the environmental impact of the alternatives by evaluating



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the number of acres treated (Page IV-22) is overly simplistic. We would like to see improved characterization, and where possible, quantification of the risks and environmental impacts.

The herbicide mitigation measures as written go well beyond the realm of reason and well into the realm of unworkability. As written we believe that these measures will make herbicide spraying, particularly aerial application, impossible, regardless of the alternative chosen. These measures need to be modified.

It is sufficient to notify adjacent landowners prior to spraying, and to only notify others (and then, only those that can reasonably be expected to be affected) if a spill or other accident occurs. (Page II-81, #1)

Areas for mixing herbicides (Page II-82, #5) are overly restrictive. These areas should be located a reasonably safe distance from surface waters. Mixing should occur in areas where risk of groundwater contamination is low, rather than "will not...result in groundwater contamination." It is not possible to locate an operation anywhere in the Umpqua National Forest, for example, and be outside of an irrigation supply watershed.

The buffer restrictions (Page II-82, #7) are overly restrictive. We strongly recommend examining the buffers worked out for the new Oregon Forest Practices Act. These buffers were designed with considerable input from the Oregon Department of Fish and Wildlife, and take into account the needs of the various resources and safety margins for spray getting into the water. They are several times less restrictive than the proposed forest service buffers in the DEIS.

Table III-7 (Page III-48) is highly unbalanced, perhaps because the numbers are based upon the public's view of perceived risk and ignorance about operations, rather than real risks. The helicopter spraying operation with 20-25 workers can hardly be done for an average of \$56.00 per acre. (Page E-6)

It would appear that a water monitor, two flaggers (only if there is spraying adjacent to a road in the spray area), one general support person who also serves as a radio technician, and one inspector who uses spray detection cards to document coverage, if necessary, is all that would be required. Additional personnel should only be used as the specific job would dictate.

With regard to rights-of-way spraying, water monitoring and a guide or flagger may be appropriate in certain circumstances.

Handpiling of slash and other manual programs are very expensive. Where reasonable alternatives exist these should be used.

The Roseburg Area Chamber of Commerce wholeheartedly supports the "Oregon Comeback." We believe an effective vegetation management program, with all tools readily available for use in treating competing vegetation, both for seedling survival and seedling growth enhancement, is the best way to assure adequate timber supply for future generations.



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We also believe that tourism in Douglas County will not be affected by a full scale vegetation management program, as in the "B Plus" modified alternative.

We appreciate the opportunity to comment on the vegetation management draft environmental impact statement. We congratulate you for your efforts to gather testimony throughout the draft preparation process. We hope that you will incorporate our comments and recommendations into the final environmental impact statement and the record of decision.

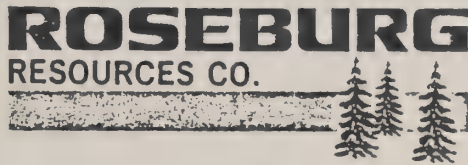
Sincerely,



Neal Walker  
President  
Roseburg Area Chamber of Commerce

cc Senator Mark O. Hatfield  
Senator Bob Packwood  
Congressman Peter DeFazio  
Congressman Bob Smith  
Congressman Denny Smith  
Congressman Ron Wyden  
Congressman Les AuCoin  
Governor Neil Goldschmidt  
State Senator John Kitzhaber  
State Representative Verner Anderson  
State Representative Bill Markham  
Selected Oregon Chambers of Commerce

001126



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February 5, 1988

Mr. Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific NW Region  
P.O. Box 3623  
Portland, OR 97208

Dear Gary:

We have just completed reviewing the draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation in the Pacific Northwest Region, and offer the following comments based on our review and our background in management of forest lands in this area.

We are primarily a timberland owner and manage our ownership of over 800,000 acres for timber and other land resources. Much of our acquired ownership had previously been logged by other owners, and we have been able to put most of these lands back into production of a timberland resource. In managing our land, we have had to effectively use all available techniques because of the diverse land forms and varying vegetation. Our experience readily proved that no one technique was totally successful on a general basis to bring land back into production or to maintain desirable tree growth free of unwanted competition.

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The forest Service Statement, as written, is exceedingly general in its approach to evaluating the problem of controlling unwanted vegetation and allocating the impact of the alternatives within a specific dependent area. An early example of the general approach, is the statement on Page 1-2 of the introduction, "Brushy plants compete with Douglas Fir seedlings in some parts of the Coast Range; grasses and forbs compete with conifer seedlings on the East side." As practicing land managers, we know that there are a lot of overlapping situations between the wide geographic range on which specific applications have to be made for either or both grass and brush.

Page 1-10 of the statement outlines a statement of Costs & Benefits. The costs of each alternative should also be equated against results of the activity. Effectiveness must be weighed against attaining the biological potential of the land, not holding a status quo of the natural vegetative progression.

Chapter II - The Alternatives - All of the alternatives are based on a very broad, general vegetative and landform mix. None of the alternatives really show their impact on a human physical community. We know that portions of Washington State are much different in vegetation, landform, and climate than portions of Southern Oregon. Perhaps Alternative "B" would come close in

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aiding to achieve the biological potential of the land in Washington and "G", which is indicated to be the most aggressive, will fall short, by our experience, of controlling the unwanted vegetation in Southern Oregon.

As spelled out on Pages 11-22 & 23, the indicated effectiveness of techniques really tell what results they hope to attain, and we make the following comments on these with the following pictures and narration.



Photo #1 shows a distant view of a variance in vegetation control. To the left is public ownership and to the right is industrial ownership. The total area was burned by wildfire in 1973. It was logged and planted to conifers. The public area



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was treated to control grass competition and then there was a herbicide ban imposed on public lands. The industrial area was treated to control grass and then had one treatment to control brush. Eventually some species sprouted and a certain amount of brush exists but this area has a viable stand of conifers growing.



Picture #2 shows a closer look at the two ownerships. A few trees exist on the public ownership, but most of the area is dominated by brush and most of the conifers have been destroyed by rodents.

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Photo #3 - One of many wood rat nests within the brushy area on public ownership. From our experience, we know that it will be very difficult and costly to put this area back into production.

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Picture #4 shows a close up of the area on industrial land which has received one treatment to control brush. As the photo shows, a certain amount of brush and grass still exist. There is a lot of wildlife cover and food present and considerable signs of wildlife use in this sprayed area.

1. Human Health - All alternatives predicate the health issue based on perceived risks. There is much solid scientific knowledge determining actual risks of the chemicals to be used. The major issue not evaluated, but mitigating the risks is the distance from human populations on which the treatments are normally made. The number of people the government involves in

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the actual application appears overly numerous compared to normal industry applications. This, of course, increases the chance of exposure of the individuals.

2. Public Participation - We believe it is necessary to inform the public on public projects but, at the same time, it is necessary to do a good job of educating so that you are dealing with an informed public.

3. Social and Economic Effects - All of the alternatives show a negative effect. Perhaps this is true if you only state the benefits of increasing the stocking on marginal lands. We do not see where you show any benefit through release of desirable conifers which, by Forest Service estimates, is up to 18% increase of conifer growth on some forests and where you may lose up to 15 years in your rotation. These are very positive social and economic benefits, especially in SW Oregon forests where brush competition is very critical. Loss of volume production over the whole region appears insignificant, but we assure you on some forests it will be very substantial. The fall down in growth added to the reduction of manageable acres because of other constraints in the Forest Management Plans will have a compounding effect on volume losses.

4. Cost/Benefit Analysis - A true cost/benefit analysis can not be made if all factors are not considered, i.e., potential growth increases, economic applications, emphasis on better sites not only on marginal lands.



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5. Environmental Effects - We are unsure, but it appears that if you use methods to increase growth, you will increase biomass on a predicted rotation instead of a decrease.

From all of the rules, regulations imposed and proposed, it is evident that current conditions of air quality will not be allowed to prevail. We are now required to modify our slash disposal by burning to certain seasonal periods because of recreational concerns. With population centers increasing, burning is apt to be further limited because of possible smoke intrusions and greater reliance will have to be put on other vegetation control measures. The inclusion of additional areas of visibility protection because of the designations of additional wilderness areas will also have a substantial impact on the ability to burn. We believe your predicted use of fire in vegetation management is overstated for the next decade, and you must recognize that more reliance must be placed on the effective use of herbicides.

6. Effectiveness of Techniques - Your stated effectiveness within your most aggressive alternative appears very minimal and it leads us to believe this alternative is not very aggressive. Perhaps you need to develop this alternative more fully or add an alternative showing biological potential based on scientific findings such as those developed by Oregon State University through their vegetation research programs such as Forestry

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Intensified Research - FIR. We have found that even if seedlings are established, they can be lost later because of brush invasion with its protection of wildlife and predatory animals which, in turn, destroy the trees, i.e., wood rats, porcupines and rabbits.

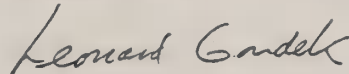
7. Interagency Coordination - Viewed as necessary for public projects.

In general, the plan is written to respond to the needs of an excessively large geographic area with too much variation in vegetation and vegetational needs. The impact of such broad coverage tends to gloss over many of the local problems and community needs. As mentioned earlier, certain communities are very dependent on the Forest Service Timber Resource and this should be recognized in a plan such as this. An unnecessary loss of any jobs in a resource-based community has a detrimental, multiplying effect on the people of the community.

Thank you for the opportunity to discuss your plan.

Sincerely yours,

ROSEBURG RESOURCES CO.



Leonard Gondek  
Chief Forester

LG:gb

AD-503 REV. 2-86



E. I. DU PONT DE NEMOURS & COMPANY  
INCORPORATED

WALKER'S MILL, BARLEY MILL PLAZA  
WILMINGTON, DELAWARE 19898

AGRICULTURAL PRODUCTS DEPARTMENT

7 February 1988

Mr. Gary Larsen  
Vegetation Mgmt Group Leader  
USDA Forest Service  
Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

Thank you for the opportunity to review "Managing Competing and Unwanted Vegetation", the DEIS for the Pacific Northwest Region. As a forestry representative for E.I. Du Pont de Nemours & Co., Inc, I work with timber companies and land owners in the Pacific Northwest, many of whom are dependent to varying degrees on the National Forest system.

I strongly urge your support of Alternative B. It appears this alternative best allows the Forest Service to achieve their objectives in a timely, cost effective manner.

A large portion of the document deals with risk. Perceived risk can be as important as actual risk to the public. Therefore, an attempt to educate with regard to herbicides and their characteristics might be helpful. Chapter 2 pages 25-8 lumps the risks of smoke with those of herbicides. The different levels of risk among herbicides is significant in itself and makes any kind of quantitative judgement as a group difficult. But to rate risk for each alternative by combining smoke with herbicides may be quite misleading. Obviously, risk is extremely difficult to quantify, but without some kind of method (other than "...estimating the total number of acres that would be treated either by herbicides or fire in any alternative...") to put these risks in somewhat tangible terms, the risk evaluations mean very little.

The effectiveness of various treatments versus herbicide treatments appears throughout the DEIS. In many cases, yield reductions and decreases in survival and conifer vigor are shown to be quite minor. As an example, Table A-1 on page A-35 of the Appendices. These references all lack the component of cost. Current research consistently demonstrates the losses in yield due to vegetative competition. While it is possible to significantly reduce competition by non-herbicide means, it is

BETTER THINGS FOR BETTER LANDS

often cost prohibitive, manpower impossible, or both. Multiple entries on the same site and their costs must also be compared to a single herbicide application. The growing backlog during a period of no herbicide use suggests problems in manpower and/or budget requirements to accomplish these goals. It may be possible to achieve desired yields but if the project costs are prohibitive, reduced yields will result.

Looking at the same issue from another angle, Table II-9 estimates a very minor increase in annual budget for alternative A (no herbicides) versus B. Does this take into account the past history of effectiveness of alternative control measures and the number of entries required to achieve yield goals? Alternatives such as grazing may be practical in some situations but not in others. An alternative such as insect biological control may be useful in a very specific instance but is not likely to be practical for the overall solution. More "tools" are needed.

Some portion of the herbicide use information, methods of application, and resulting "Mitigation Measures" appear to be based on outdated information. Several chemical manufacturing companies are active in the research and development of new chemistry, new formulations, and new application techniques to better address today's issues. As an example, several new developments with hexazinone have increased its flexibility for forestry and range use. A granular form, "Pronone" granular herbicide, may be applied by hand (belly-grinders), ground equipment, or helicopter (suspended bucket). Reduced drift potential and increased production rates as well as worker safety are all important considerations. "Velpar" ULW herbicide is the newest form of hexazinone. It is currently registered east of the Rocky Mountains and nearing registration in the west. Highly developed application equipment enables only 2.7-4 pounds of dry granule product to be applied per acre by air. Further gains in reduced drift potential, increased production and worker safety, and reduced support crew needs make it an ideal fit for western forestry. "Velpar" L herbicide may be applied with a spotgun to the soil for the control of certain brush and hardwoods. Safety and ease of application as well as high production rates make this technique a valuable tool. It should be particularly beneficial for Rangeland/Juniper Management. Field trials are currently in place for this use.

New developments continue to make herbicide applications safer and more cost effective for use in Forestry and Range. It is important to consider these benefits when defining mitigation measures. Not all herbicides will react the same under a given set of circumstances. New technology is specifically addressing the current issues of concern and herbicide use should be considered in this light.

I would like to make a few comments regarding references to some of the Du Pont Company products in the DEIS. Under "Hexazinone" on page C-9, trade names for forestry use now include "Velpar", "Velpar" L, "Velpar" ULW, and "Pronone". Use



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rates (C-10) are typically 1-3 lbs A.I. (not acid equivalent) per acre. Application methods include aerial, ground equipment, hand spreaders, and spotguns. Under "TARGET VEGETATION", conifer release over several conifer species (including ponderosa pine, douglas fir, white fir and red fir, among others) is acceptable and common practice. Only certain species should be avoided. Page C-17 makes reference to "Oust" herbicide. "Oust" is registered for Conifer Site Preparation and Release in Oregon and Washington. Page II-79 refers to herbicides being considered for use. Diuron is the active ingredient in "Karmex" herbicide. Bromacil is the active ingredient in "Hyvar" X herbicide. And a combination of bromacil and diuron make up the active ingredient in "Krovar" I herbicide.

Toxicology issues dealing with Du Pont products will be addressed under a separate letter.

After reading the DEIS and considering the points discussed above, I believe Alternative B is the clear choice that best allows Forest Service objectives to be met in a safe, timely, and cost effective manner.

Again, thank you for the opportunity to participate in the review process.

Sincerely,

*William S. Seaman*

William S. Seaman  
Forestry Specialist

001084



## SIERRA CLUB

## Oregon Chapter

2506 N.E. Halsey  
Portland, OR 97232

February 2, 1988

Pacific Northwest Region  
USDA - Forest Service  
P.O. Box 3623  
Portland, Oregon 97208

Re: DEIS - vegetation management

Having reviewed the draft EIS on vegetation management on Region 6 forestlands, the Oregon Chapter of the Sierra Club recommends the adoption of Alternative D for the following reasons.

First, we believe the ecological and economic integrity of the region are indissolubly intertwined and depend over the long term on maintaining the biological diversity of its natural resource base. An integrated pest management (IPM) strategy is more conducive to maintaining that diversity than the traditional spray-and-burn approach, a management philosophy predicated on the false belief that monoculture is the most productive form of forest management. In fact, the Waldsterben, or dying forest phenomenon, in western Europe shows this approach to be biologically and economically unsupportable over the long term.

A regime of spraying and slashburning contributes to leaching and loss of soil nutrients required not only by merchantable tree species but also by other forest flora; it likewise upsets the natural balance of the forest ecosystem by reducing or eliminating invertebrates and microorganisms necessary and beneficial to forest health and productivity.

Aside from its impacts on long term timber production, it also undermines other significant economic values of our region's forestlands. Run off of herbicides and pesticides and erosion from burned over land are deleterious to freshwater and ocean fisheries both commercial and sporting. As regards recreation, clearcuts and monoculture tree plantations are not what most people seek when pursuing outdoor recreation such as hiking, fishing, boating, nature observation, and emotional and spiritual renewal in nature. (While there is some evidence that clearcutting encourages the rise of deer populations, informed hunters say that is no trade-off when balanced against the deleterious impacts of traditional forest management.)

... To explore, enjoy and preserve the nation's forests, waters, wildlife, and wilderness ...

Economic research carried out by USFS (see PNW-359, May 1986), for example, showed that in five timber dependent counties studied in Region 6, sectors other than wood products grew faster in all five and the retirement sector was economically more significant in three. Add to this the fact that the forest products industry is rapidly shrinking as a job maker thanks to automated processing and other "efficiencies" embraced by that industry. While forest products will remain a major sector of the regional economy in the foreseeable future, it seems shortsighted if not irresponsible to continue management practices which deplete and degrade the overall natural resource base. In this light it is clear that the immediate financial benefits gained by adhering to traditional spray-and-burn management will not compensate for a decline in longterm timber productivity as well as adverse impacts on other economic values of the forest.

Of equal concern are the human health issues associated with herbicides and slashburning. Herbicides and pesticides contaminate drinking water supplies through stream run off. By your own admission (Appendix H of the DEIS), the chemical agents routinely used in vegetation management are a) known to be injurious to human health or b) not proven safe. To continue using these agents or other like them in view of these data is ethically and environmentally unconscionable. USFS should not apply herbicides to watersheds that provide drinking water; at the very least, USFS should make sure that none of the chemical agents identified as problematic in alternative E are used at all in vegetation management on the national forests.

Likewise, slashburning is severely detrimental to air quality and should be kept to a bare minimum out of concern for human health. Recognizing that periodic wildfires are essential to forest and range ecosystem health, we have no quarrel with the Region 6 policy of using prescribed burning where it will benefit the ecosystem. However, traditional slashburning when used to perpetuate a nearly universal monoculture form of forest management is unacceptable and a deliberate intrusion on air quality that is especially harmful to residents of affected areas who suffer from temporary or chronic respiratory problems. The DEIS acknowledges that burning of activity-generated fuels will be less common in the future, and we urge the Forest Service to require managers to use other methods where feasible.

While the DEIS per se represents a major step forward in examining the pesticide/herbicide issue as a whole, both it and alternative D contain certain deficiencies which are troubling.

The DEIS glosses over herbicide and pesticide impacts on water and wildlife. Proceeding on the assumption that these

agents pose no significant threat to water and wildlife, the draft recommends spray buffer zones inadequate to protect human life and wildlife from herbicide contamination. In those cases where USFS has determined after careful and exhaustive study that herbicides must be used, we recommend very strong setback policies from intermittent and permanent streams to protect water quality and wide spray buffers to protect living beings from herbicide drift. We also recommend banning not only dioxin-based chemical agents but also agents with dioxin residues.

Likewise, the definition of "prevention" seems inadequate. The draft document appears to define prevention in chronological rather than methodological terms. Early application of traditional control methods per se is not prevention. We encourage the Forest Service to address in full the environmental conditions and management decisions that create and encourage the growth of unwanted vegetation rather than merely deciding at what particular time to apply control methods. USFS research has shown, for example, that use of selective harvesting instead of clearcutting can reduce the sprouting of tan oak.

As for Alternative D, the management philosophy encapsulated therein seems clear; how the measures outlined would be put into practice is not. Any FEIS should certainly spell out how management would be implemented "on the ground." Likewise, the agency and the public alike need to know what "using herbicides as a last option" means in practical, operational terms.

It would be wise for the Forest Service to engage in rigorous research to address these concerns and to develop and implement IPM in deed as well as in name.

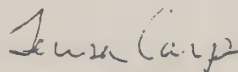
With these reservations in mind we strongly support the adoption of Alternative D as the most reasonable and balanced approach to vegetation management presented in the DEIS.

Thank you for the opportunity to comment on this subject.

Sincerely,



Carol Lieberman  
Chair  
Oregon Chapter  
Sierra Club



Teresa Carp  
Pesticides Coordinator  
Oregon Chapter  
Sierra Club





# SOCIETY OF AMERICAN FORESTERS

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teaching of forestry to benefit society*

**OREGON SOCIETY  
OF  
AMERICAN FORESTERS**  
*Representing the Forestry Profession  
in Oregon*

January 8, 1988

## CHAPTERS

Blue Mountain  
Capital  
Central Oregon  
Columbia Gorge  
Coos  
Emerald  
John Day  
Marys Peak  
Portland  
Rogue  
Shasta-Cascade  
Siskiyou  
Tillamook-Clatsop  
Umpqua

Mr. Gary L. Larsen  
Vegetation Management Team  
Pacific Northwest Region  
USDA Forest Service  
P.O. Box 3623  
Portland, OR 97208

Dear Gary:

We appreciate the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for "Managing Competing and Unwanted Vegetation." We would like to compliment the Vegetation Management Interdisciplinary (ID) Team for preparing such an explicit description of vegetation management options for Pacific Northwest Region lands of the USDA Forest Service.

## STUDENT CHAPTERS

Central Oregon  
Community College  
Oregon State  
University  
Southwestern Oregon  
Community College  
Treasure Valley  
Community College

The attached comments reflect the views of the Vegetation Management Committee of the Oregon Society of American Foresters. Members of the Committee include Mr. Stephen L. Cafferata, Dr. Kent P. Connaughton, Dr. Stephen D. Hobbs, Mr. Robert E. Metzger, Dr. Michael Newton, and myself. Collectively, we represent a broad array of expertise in silviculture, forest ecology, forest vegetation management, forest economics, and forest management in general. The attached comments have been reviewed and endorsed by the Executive Committee of the Oregon Society of American Foresters. The Oregon SAF, with approximately 1,600 members, is a regional unit of the national Society of American Foresters.

Mr. Gary L. Larsen

Page 2

Our suggestions on the following attachments encompass seven major topics:

1. An "Integrated Vegetation Management" (IVM) alternative should be developed and adopted. The current alternatives have been developed to respond to specific issues, and, therefore, do not necessarily reflect an optimal solution. We believe there is a need to develop an "IVM Alternative" that blends the best features of each of the current alternatives. It would closely approximate "Alternative B," but would be tempered by desirable features found in other alternatives.

We do not believe our suggestion for developing an "IVM Alternative" will require much additional work or analysis. In fact, we were able to use the precise language and concepts already contained in the DEIS to outline what such an alternative might look like (see attached proposal). We think an "IVM Alternative" will be more workable and defensible than any of the existing alternatives.

2. An analysis is needed of how well each alternative meets the goals. The current alternatives have been constructed to respond to issues rather than goals and objectives. As a result, we are uncertain whether they are workable with respect to achieving the outputs specified in Forest Plans. We believe additional analysis is needed to display these consequences and ensure that vegetation management practices will, in fact, achieve the goals and objectives for which they are intended.
3. The risk analysis warrants additional scrutiny. We encourage serious consideration be given to comments and suggestions by qualified risk analysis experts to correct apparent imbalances, imperfections, and misconceptions in the current analysis. Moreover, the intense scrutiny given herbicides is equally essential for other tools. For example, we believe the risk of transporting large numbers of crews to and from remote worksites needs to be considered in the analysis for techniques requiring large labor forces.
4. The impact of various alternatives on budget (cost) requirements appears to be inconsistent or uncorrelated in the DEIS. The information given at various places in the DEIS leads to projections of different cost impacts for any given alternative (except B, the reference). Either more clarification of cost estimates is needed, or the data need to be checked to ensure comparable values throughout the document.

Mr. Gary L. Larsen

Page 3

5. Insufficient information is given to reconstruct or verify the economic analysis. Furthermore, the impact on local and regional economies appears to have been understated or dismissed without adequate consideration.

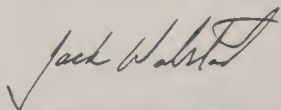
We were unable to understand the basis for the economic efficiency analysis and the impact analysis. From the information in the DEIS, we suspect that the efficiency analysis is not consistent with the affected social environment and may give a distorted view of the desirability of the alternatives; the same may be true for the impact analysis.

6. The utility of certain tools described in the DEIS is overly optimistic. Our experience indicates that several of the tools have serious limitations with respect to efficacy and practicality. In some cases the data base is lacking to support widespread use. Consequently, the realization of predicted outputs, costs, production rates, safety, and time frames may be overly optimistic.

7. Information supporting statements in the DEIS is sometimes incomplete or incorrect. This is particularly evident with respect to literature citations. As examples, citations for Pyne 1982 (p. III-8) and Starkey 1985 (p. IV-66) are missing from the References section. The title of the forest vegetation management book edited by Walstad and Kuch is incorrect on page 23 in the References section. The final version of the EIS should be carefully proofed to minimize such errors and omissions.

We trust the aforementioned suggestions and attached material will be helpful in developing the final EIS document and providing the basis for a defensible decision by the Regional Forester. To this end, we would welcome the opportunity to visit with your ID Team about our comments. Please contact me at your earliest convenience so we can set up a date to meet.

Sincerely yours,



JOHN D. WALSTAD, Chair  
Vegetation Management Committee

xc: OSAF Vegetation Management Committee w/enc.

enc.

Oregon State U.  
College of Forestry  
Corvallis, OR  
97331

PROPOSAL FOR AN INTEGRATED VEGETATION MANAGEMENT (IVM) ALTERNATIVE

	<u>Instructions</u>	<u>Rationale</u>	<u>Source</u>
Philosophy	"...to intensively manage resources, meet Forest Service program goals, and to have minimal adverse effects on [humans and]* the environment."	Promotes optimum output of goods and services while protecting humans and the environment.	p. II-3
Procedure	[Use a six-step, site-specific process which includes: 1) management goals, 2) site analysis, 3) strategy selection, 4) project design, 5) action/implementation, and 6) monitoring and evaluation.]	Ensures ■ thorough site-specific provisions for appropriate provisions for planning, decision-making, implementation, and feedback.	p. II-54 to 61
	[Incorporate] "early involvement of the public in [goal and criteria setting,] environmental analysis procedures, and on carrying this participation through to project implementation and monitoring." [Develop a detailed procedure which documents the steps necessary to fulfill this obligation.]	Provides maximum opportunities for public participation, input, and feedback. Promotes public confidence and acceptance.	p. II-12, Alt. D
Purpose & Theme	"All effective and efficient techniques for managing competing and unwanted vegetation are available, consistent with the direction provided in applicable land and resource management plans."	Maximizes flexibility and options available. Promotes a truly integrated approach to vegetation management.	p. II-8, Alt. B (also Alt. G)
	"...approximates the direction presented in proposed Forest Plans."	Minimizes disruption of the planning and implementation of Forest Plans. Approaches case where most experience and confidence exist in meeting management goals and objectives.	p. II-8, Alt. B

\*Items enclosed in brackets are additional text not included in the current DEIS.



	<u>Instructions</u>	<u>Rationale</u>	<u>Source</u>
Time for Action	"The need for action is evaluated at the first [measurable] sign of any competing or unwanted vegetation that could potentially damage wanted species or desired conditions."	Promotes early detection, thereby maximizing opportunities for dealing with the problem in an appropriate fashion, with minimum site disturbance.	P. II-6, Alt. A (also Alt. B, D, E, F, G)
Project Design Strategy	"Prevention is the preferred strategy, except where correction is either the only feasible approach, or can be shown to incur lower cost or environmental impact [and risk to humans]."	Allows flexibility to deal with problems or potential problems in most appropriate manner, including taking no action.	P. II-14, Alt. E (also close to Alt. A, D, F, G)
	"...correction, if needed, is done in a way to [complement] natural ecosystems and processes."	Protects long-term ecosystem health.	P. II-12, Alt. D
	"Regardless of whether control is applied, monitoring [record-keeping, surveillance] and evaluation are essential."	Provides validation and rapid feedback in case corrective action or mitigation measures are needed. Also increases data base for future situations.	P. II-6, Alt. A (also Alt. D)
Human Health	"All techniques being considered will be analyzed [on an equal basis] for potential direct and indirect effects on human health [(both physical injury and toxicological effects)] prior to [use]. The selected technique will have low risk when compared to other suitable techniques that also meet other design criteria."	A wise, defensible course of decision-making which is based on equal and consistent criteria.	P. II-6, Alt. A (also Alt. D, E, F)

	<u>Instructions</u>	<u>Rationale</u>	<u>Source</u>
Environmental Effects	"Adverse effects in both the long- and short-term will be minimized by following the appropriate land-management planning documents, and by additional mitigation measures [as appropriate and] described in this EIS."	A reasonable and defensible series of precautions and corrective measures.	p. II-8, Alt. B (also Alt. A, D, E, F, G)
	"In the face of uncertainty concerning effects of a particular tool, the manager will balance the potential for an adverse environmental impact with cost and benefits." [The degree of uncertainty will be explored in detail. Criteria to be used in such an evaluation should be valid and comprehensive across all tools.]	Ensures that a well-reasoned, balanced, and practical decision will be made in selecting a treatment.	p. II-6 to 7, Alt. A (also Alt. B, F, G)
Tools Available	"All tools and techniques are permitted. The use of tools has and will continue to change, based on new research, the analysis of completed projects, and improvements in technology."	Maximizes flexibility and options available, thereby promoting an IVM approach. Ensures contemporary techniques are used and promotes technological progress.	p. II-9, Alt. B (also Alt. G)
	"Opportunities to reduce the [dependency on any one tool or technique] will be sought."	Will reduce dependency on any one tool and ensure that that its use is confined to areas where it is most needed and most effective.	p. II-9, Alt. B
	"The use of [all] tools will require operator safety training and proper protective gear, and will not be used [under conditions that are excessively hazardous]."	Reduces risk of injury associated with any given tool or technique.	p. II-15, Alt. E
	[Efforts should be made to coordinate the use of broadscale tools having the potential for major off-site impacts (e.g., slash burning) among public and private landowners.]	Reduces likelihood of "cumulative effects" problems and conflicts over availability of personnel, materials, equipment, and permits.	N/A

<u>Instructions</u>	<u>Rationale</u>	<u>Source</u>
<p><b>Budget and Cost</b></p> <p>"The costs of activities will vary, but will generally not exceed budgets that can be reasonably expected."</p>	<p>Assures compliance with budget allocations.</p>	<p>P. II-7, Alt. A (also Alt. B, D, E, F)</p>
<p>"The methods selected will be the most cost-effective means to meet the management objectives [within the guidelines necessary for realistically protecting public health, worker health, and the environment according to valid and consistent criteria.]</p>	<p>Assures fiscal responsibility.</p>	<p>P. II-9, Alt. B</p>
<p><b>Outputs</b></p> <p>"Vegetation management activities will be those required to support the production of Forest commodities [and amenities] at a level approximating those of the applicable land and resource management plans."</p>	<p>Assures a balance of economically-important commodities and environmentally-important amenities.</p>	<p>P. II-7, Alt. A (also Alt. B, E, F)</p>

An Analysis is Needed of How Well Each Alternative Meets the Goals  
of Regional and Forest Plans

Figure II-3 on p. II-22 and 23 in the DEIS shows how the various alternatives respond to issues. We believe it is equally important to display how each of the alternatives responds to meeting the goals of Regional and Forest Plans. After all, that is why vegetation management is done.

For example, will implementation of Alternative A (or B, C, D, E, F, and G for that matter) provide the goods, services, and amenities necessary to meet the management goals for any given Forest? At the present time there is no analysis in the DEIS document which shows that the various alternatives will work well enough to achieve such goals. Statements such as that found on p. II-7 (and elsewhere)--"Vegetation management activities will be those required to support the production of Forest commodities at a level approximating those of the applicable land and resource management plans"--are not sufficient to assure that Forest or Regional goals can or will be met by any given alternative. Consequently, we are skeptical that Alternatives A, C, D, E, and F can be implemented on a scale which will achieve "full timber yields" on the one-third of the acres allocated for such purpose as stated in Appendix A on p. 2. The achievement of other multiple-use goals for the Forests are likewise questionable.

In light of the tendency for current Forest Plans to withdraw land from the timber base (or otherwise reduce timber production) in order to support non-timber values, some assurance needs to be provided in the DEIS that vegetation management will be applied at a sufficient intensity to offset such losses by intensively managing for timber production on the remaining lands. Except for Alternatives B and G, we are skeptical that adequate compensation will occur.

In short, we believe an analysis needs to be performed showing how each alternative (or at least the final one to be selected) stacks up in its ability to meet the management goals and objectives of Region 6 Forests. (Indeed, this was a recommendation we made in our correspondence to the ID team in February 1987). Appropriate yardsticks for evaluation would be timber production and site productivity, wildlife habitat, water and air quality, recreational opportunities, worker and public safety, and compliance with budget and time constraints. Where possible, quantitative criteria should be used.



Critically Re-Examine the Risk Analysis

We encourage the Forest Service to critically re-examine the risk analysis portion of the DEIS. Although we are not experts in risk analysis, there appear to be some imbalances concerning the treatment of various tools in the risk analysis. For example, if herbicides are analyzed from an "accidental-worst case" perspective, then other tools should be subjected to similar scenarios. Also, there may be toxicological risks associated with manual methods (chain saw emissions), mechanical equipment (diesel fumes), and biological methods (diseases, pollution) that have not been addressed in the DEIS. These risks are real, but are seldom acknowledged, and they warrant some discussion and evaluation in the DEIS. In short, all tools should be analyzed in equal detail in order to provide an equitable and comprehensive basis for decision making. Areas of uncertainty for all tools should be acknowledged in compliance with NEPA statutes and CEQ rules.

Clear distinctions should be drawn between perceived risks and real risks. The former are often the result of misunderstanding or misinformation and need to be corrected through educational programs. The latter are based on actual data and should be the ultimate criteria in decision making. Preparation of the final EIS offers an opportunity to enlighten the public rather than further cloud the issue. We suggest an educational program for the public on risks be included in the final EIS as another "mitigation measure."

A fourth table similar to Tables IV-24 through IV-26 showing confidence levels for "Worker Exposure from Routine-Realistic Aerial Spraying" would provide a useful contrast to backpack spraying. Such information would help a decision-maker evaluate the relative expected hazards to workers for the two techniques of herbicide application. A statement about the value of wearing protective apparel and using careful hygienic practices would also be enlightening. The current analysis assumes that none of these precautions is followed.

Treatments or tools should be analyzed for all risks, including those associated with scale of use. For example, we suspect that the risks involved in transporting large numbers of crews to and from remote worksites, frequently in the dark and bad weather, are both real and substantial. They should not be overlooked or casually dismissed. Consequently, we believe the risks as presented in the DEIS are underestimated for the techniques requiring large labor forces. The inclusion of such risks could lead to a wider and more realistic separation among alternatives than that currently displayed in Figures S-6 and IV-13.

The true hazards associated with particular methods are currently buried within the alternatives and acreages described in the DEIS (p. IV-125 to 128). We believe a more accurate and meaningful portrayal would be to express risks on an absolute basis, such as the number and severity of injuries per thousand acres treated by any given method.

We urge that comments and suggestions from qualified risk analysis experts be seriously considered and incorporated where appropriate in the final EIS. This will ensure that all major sources of risk data have been consulted and used correctly.

Treatment of Budgetary Constraints Needs Clarification

The Draft Vegetative Management EIS does not apply uniform budgetary constraints across all alternatives evaluated. It does, however, address the matter of public forest management budget considerations. It does this by using Alternative B as a baseline, costing out anticipated vegetative management to support the preferred alternatives coming out of the current set of National Forest Draft Plans under the assumed funding available in the USFS, Region 6 proposed FY 1989 budget. Each of the six other alternatives in the EIS (A, C, D, E, F, G) is compared in relation to acres treated annually by various available tools, and impacts of the various alternatives that are anticipated, including total budgetary cost - + or - for the Alternative B reference baseline.

Reviewing only the Summary Section and DEIS Chapter II Tables, we developed a distinct perception that, with the exception of Alternative C - "No Vegetative Management," that the budgetary cost estimates of the alternatives had much less variance (-\$12 million to +\$20 million) than one would predict, given some sizeable shifts in the areas of low cost per acre herbicide treatments, and rather expensive manual, mechanical and prescribed fire treatments. Of course, some shifts between non-chemical alternatives tend to offset each other in relative cost.

Tracking down budget cost differentials eventually proved feasible with some investment of effort in comparing Summary Section data with budget analysis work in Appendix B and silvicultural treatment average costs obtained in Appendix E. The results of this effort are displayed below:

<u>Budget Cost Analysis</u>			
<u>Alternative</u>	Table S-4 Total Cost Differential (+ or - for Reference Level B) (\$000,000)	Appendix Table B-2 Algebraic Sum of All Costs Shown (\$000,000)	Table S-3 Treatment Acres X Appendix E - Average Costs per Acre for Silvicultural Treatment (\$000,000)
A	+ 1	+ 6.2	+ 2.5
B	(Ref.)	(Ref.)	(Ref.)
C	-126	-38.4	-82.7
D	-21	+ 9.7	-34.0
E	- 9	- 2.9	- 5.2
F	-19	+ 2.9	-11.8
G	+20	+11.3	+ 2.6

The total budget cost differentials derived in each of the three columns above when compared across the seven alternative rows seem to produce no significant correlation with the exception, of course, of Alternative B (the reference). Perhaps these calculations, based on these three sets of data in different parts of the EIS, are not comparable. If so, more correlation must be brought to the EIS to avoid confusion and perhaps misleading conclusions.

# I/B Public Participation and Consultation

One cause of the problem may be that average costs from all forests (eastside and westside) have been used instead of aggregating all site-specific costs. If so, a shift to aggregation of costs might provide a more useful comparison.

Another factor is that there seems to be an inordinately high reliance on mechanical site preparation. Could it be that "YUM" and "PUM" are included or is there that much windrow pile and burn work? If so, long term site productivity impacts may be unacceptable. If reworking shows greater budget differences by alternatives, then a uniform budgetary constraint approach to yield variable outputs might be a more realistic analytical approach.

Critically Re-examine the Efficiency and Economic Impact Analyses

We believe that the economic and social analysis should be appropriate to and follow from the affected social environment'. Though the DEIS is an evaluation of a regional program, the affected social environments are local rural, forested, and rangeland areas in Oregon and Washington.

We suggest that the impact analysis recognize the effects on these local rural economies, and that the efficiency (cost/benefit) analysis be constructed from an understanding of the effects on resource outputs, including the timing and quantity of likely effects, at the National Forest level.

The economies of affected rural areas generally do not have employment and industrial profiles comparable to the overall economies of Oregon and Washington. Instead, the economic bases of the affected economies are likely to be highly resource-dependent, and the impacts of the selected alternative may be of major local importance. They should not be summarily dismissed as trivial. It is misleading to characterize the economic effects of the alternatives as insignificant because national economic forces (e.g. interest rates) may cause dramatic fluctuations in timber and range industries, or because such industries make up a small proportion of the total employment in each state, or because the economies of the two states are becoming increasingly diversified. Such forces are not within the control of land managers, are unpredictable in magnitude and timing, and are not the result of the proposed federal actions noted in this DEIS.

We could not replicate the cost/benefit analysis from the information given in the DEIS. The key to an economic analysis is the projection of quantity changes across alternatives with respect to timing, location, and magnitude. A Forest-by-Forest examination would be the most desirable way to calculate the quantity and PNV implications of the alternatives. Because of the nondeclining harvest flow constraints that generally affect Forest Service Allowable Sale Quantities (ASQ), an allowable cut effect (a change in the ASQ) can be expected with vegetation management practices that affect future stand management. These effects should be demonstrated and their PNV implications calculated Forest by Forest. If it is not feasible to conduct a Forest by Forest analysis, consider choosing one or more sample Forests to demonstrate possible efficiency and economic impact implications.

Because some of the alternatives may dramatically affect federal timber supply, we suggest you explicitly report your assumptions concerning stumpage price, and how any stumpage price effects will be translated into changes in harvests on other ownerships. These are effects that could be expected to accrue as vegetation management activities affect all National Forests within a given local timber economy. The assumption of a flat demand relationship may be acceptable for Forest-level analysis, but is unrealistic when adding up the effects of implementing such a program on all Forests within the local timber economies of Oregon and Washington.



Yield Projections and Efficacy Need Elaboration and Modification

Methods Comparisons

Yield projections, efficacy, and feasibility accounts are all weak in the DEIS, reflecting a lack of specific goals and yardsticks for evaluating vegetation management. Efficacy is a combination of treatment effectiveness when all elements work as planned, and the probability that this will happen. Efficacy is not discussed in terms of realized benefit; accomplishment probability by method is not mentioned. These two elements need separate discussions when comparing the relative effectiveness of the different treatment types. For example, manual cutting treatments may appear equally effective with herbicide treatments when the cutting treatments are repeated (the DEIS forecasts a repetition of 1.8 times) at the ideal intensity and times, but the probability that this will occur when required is much less than with treatments that are effective with only one application. Highly labor-intensive treatments have much more likelihood of error and reduced effectiveness than capital-intensive treatments. This needs to be acknowledged.

We recognize the difficulty of projecting yields (the result of treatment efficacy) from short-term data. There are several reports, however, that illustrate that differences in methods exist. Ross et al. (1986)<sup>a</sup> found that eastside ponderosa pine responded less to ripping and brushblading methods of site preparation than to disking and/or herbicide methods. In this study, ripping did not provide much brush control, and brushblading removed too much of the topsoil.

Petersen and Newton (1985) report important differences between hand release (by cutting) and chemical control, with differences increasing with time. Newton (1982) reported that hand release of Douglas-fir resulted in a decrease in height growth in the first two or three years after treatment, but that chemical release had no such effect. White (1987) showed that mechanical control of manzanita must be followed by later control to be effective, and that complete chemical control was highly effective. The key seems to be that freedom from competition early in life enhances conifer growth most, and waiting until hand release becomes operationally feasible causes trees to become less able to respond vigorously. Newton (1984) shows the divergence between growth of released and unreleased, but dominant, Douglas-fir.

No mention is made of the rapidly sprouting species (e.g., bigleaf maple, bitter cherry, willow, elderberry, chinkapin, tanoak, and myrtle) and the problem these represent when managing without chemicals. These species are abundant on Forest Service lands and should be addressed.

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<sup>a</sup>(Note: References either attached or already cited by DEIS.)

Therefore, we recommend:

1. Clear definition of efficacy in terms of biological response (survival, growth, and yield), rather than accomplished acres, for each method. Efficacy should not be confused with feasibility, which includes non-biological factors such as money, people, time, equipment, etc.
2. Acknowledgement of the weak biometrical data base for mechanical, manual, and biological methods, especially in contrast with that available for herbicide methods.
3. Provide support for the assumption that logistical limitations for labor-intensive methods are of no importance.
4. Recognition that waiting for alder or other brush to become large enough to be hand released effectively (i.e., few sprouts or other brush) will have a negative effect on ability of conifers to respond (see conclusions in Gratkowski 1979, Newton 1982).
5. Discuss real differences in methodology for dealing with the rapid sprouters, and the likelihood that satisfactory weeding intensity will be achieved with various methods.

#### Short-Term Growth Indicators of Yield

Cole and Newton (1987) and many other data sets (two attached) being examined in the OSU Department of Forest Science suggest that competition has a strong effect on the ratio of height to diameter (H/D), and that H/D is a good predictor of long-term growth. The DEIS acknowledges that diameter growth is strongly responsive to competition (see also Chan and Walstad 1987), but relies largely on height growth in yield projections. The above data show that early suppression of diameter growth increases the height/diameter ratio, and that this correlates well with decreased future growth.

The pattern among data sets is that maximum height growth is sustained only if the H/D ratio remains less than 60 throughout the period of juvenile development; also that current height growth is a poor indicator of suppression in stands <10 years old. Indeed, maximum height growth often occurs under conditions of incipient starvation (incorrectly referred to as "etiolation" in the DEIS<sup>b</sup>), and is generally followed by sharp decreases if H/D reaches 70. Because H/D tends to rise with age or competition (Cole and Newton, unpub. 1987, attached Fig. 3), continued open-growing conditions for young stands are critical. Trees in the Cole and Newton report are now ten years old; those with early H/D elevation show very striking growth depression (Figs. 1, 2). Harrington and Wagner's data (OSU, Department of Forest Science, CRAFTS) illustrate an identical pattern. These data encompass a wide range of locations.

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<sup>b</sup>Etiolation is the elongation of plant stems in the dark.

The DEIS is weak in analyzing growth responses in the eastside types. Much work has been done other than the papers by Ross et al. (1986) and White (1987), especially in northern California and at the Pringle Falls Experimental Forest (Barrett 1982). Most of the reports show substantial benefits from herbicides; those that compare methods do not suggest that all methods are equal.

Therefore, we feel that the yield estimates in the DEIS

1. Underestimate long-term effects of shrub and hardwood competition in stands where release is incomplete or delayed until feasible with manual techniques, and where current height growth suggests only minor losses.
2. Incorrectly assume equal efficacy of manual cutting and chemical methods, particularly when manual treatments are delayed until alder and other hardwoods are large enough to treat (see also Gratkowski 1979).
3. Inadequately consider eastside data, especially those dealing with shrubs, which should be analyzed separately from westside.
4. Fail to make clear that only herbicides may be applied with adequate quality control on the scale needed. Adequate training of manual crews will be difficult to accomplish for the region-wide program.

Thus, the DEIS needs support for its statements of efficacy and feasibility of treatments in terms of yields and accomplishment, region-wide. The DEIS should cite data pertaining to acres accomplished in 1984-86 to demonstrate both growth response and achievability of proposed manual programs.

## Early Indicators of Mortality and Impacts on Yield

In several brush types, reports are cited in the DEIS showing no effect of shrubs on mortality. Hollis Allen, (M.S. thesis, OSU, 1969) shows a strong correlation between rodent damage (mortality) to Douglas-fir and age of salmonberry. Cole and Newton (1987) report stands in which H/D ratios at age 9 (attached Fig. 3) have risen to lethal levels ( $H/D > 90$ ) despite good height growth through age 5.

Zavitkovski et al. (1969) reported on plantation development in Ceanothus velutinus in terms of delay in reaching dominance. Twenty years later these stands show that failure to release conifers from dense ceanothus thickets causes extensive mortality and delays conifer dominance by 10-30 years, a condition noted in the similar stands described by Petersen and Newton (1985).

Mortality and heterogeneity resulting from competition lead to reduced yield, wolfy trees, and low grade logs. The DEIS adjusts yield according to percent decrease in cubic foot volume. This should be adjusted downward to reflect the loss of value associated with the simultaneous decrease in both volume and quality.



In brief:

1. Short term analysis of height growth gives poor indications of later suppression and mortality unless H/D remains <60. The rising values of H/D in cited data indicate future mortality will be severe, with accompanying loss of yield. Five-year-old trees with H/D > 70 will probably not live unless released, and if released, will lose 2-4 years net growth.
2. Failure to note interactions of brush and animal damage will lead to an underestimation of mortality and loss of yield in the long term. The DEIS needs to acknowledge this and make allowance for incomplete brush control where this leads to animal damage or otherwise nonstocked spots.
3. Mortality resulting from herbaceous and shrubby competition does not occur at random, but occurs in clumps, leaving non-stocked gaps and wolfy stands. Show yield and value losses resulting from projected mortality of stocking with H/D > 70. Note that stress great enough to cause mortality also reduces growth of survivors markedly, and this should be included in growth projections (Zavitkovski et al 1969; Newton and Overton 1973; Preest, Ph.D. thesis, OSU, 1976; Petersen and Newton 1985; Cole and Newton 1987).

#### Site Preparation

Virtually all yield projections regarding chemicals are in terms of release. Site preparation and brushfield reclamation are major programs and should be reflected in yield projections as well. As with release, various methods have different effects (e.g., Newton 1982, Ross et al. 1986). Acknowledge effects of not having prescribed fire in addition to not having herbicides.

Much of the acreage listed under "Mechanical" is not primarily treated for vegetation management purposes. YUM yarding is a smoke reduction method having little to do with vegetation. Much of the eastside brushblading is for follow-up on beetle kills to pile and burn insect-infested slash. Inclusion of these practices implies a much-too-large acreage of vegetation suitable for mechanical control.

#### Interchangeability of Tools

This DEIS assumes that prescribed fire and herbicides will be the only tools for which banning is a consideration. If safety and/or efficacy are legitimate criteria for tool rejection or selection, power tools would likely be rejected first, followed by prescribed fire. A realistic comparison of yield effects should include an analysis of losing any tool or combination of tools that triggers a rejection criterion (e.g., safety, efficacy, cost).



## Reliability of Data

The DEIS leaves the impression that quality of information about the tools is equal. It implies that we should be comfortable with manual, thermal, biological, and mechanical methods (for which few data are available) and uncomfortable with herbicides (for which many studies are available). We recommend a much clearer introductory statement in Section IV on the issue of the comparative quality and quantity of data for various tools.

## Cost Realism

Herbicide administrative and supervisory costs as delineated in the DEIS are unrealistically high for operations done on a large scale. These costs can be reduced by experience, knowledge, and supervision. Much less opportunity exists to reduce costs for labor-intensive methods. Prescribed burning costs are also unlikely to be reduced, as air quality restrictions force burning to be done under marginal control conditions.

## Cumulative Effects

Competition for airsheds will be a factor with prescribed fire. Although reductions in prescribed burning are predicted, the acreage shown may be unrealistically high for westside conditions in view of other landowner's needs for use of the common airshed. This is especially true in view of the limited opportunities which combine both air quality and on-site prescription windows. If prescribed burning substitutes for herbicides, unreasonable competition for burning permits may ensue, with a negative effect on other owners.

## Documents Attached for Consideration When Revising the DEIS

Figures 1-3, showing height-diameter relationships in response to competition.

Chan, S.S. and J.D. Walstad. 1987. Correlations between overtopping vegetation and development of Douglas-fir saplings in the Oregon Coast Range. *Western J. Appl. Forestry* 2(4):117-119.

Newton, M. 1981. Chemical management of herbs and sclerophyll brush, p. 50-65. In Hobbs, S.D. and O.T. Helgerson (eds.) *Reforestation of skeletal soils. Workshop Proc., Nov. 17-19, 1981. Medford, OR. Forest Research Laboratory, Oregon State Univ., Corvallis, OR.* 124 p.

Newton, M. 1984. Vegetation management in plantations of the Pacific Northwest. Paper presented at the SAF National Convention held at Quebec, Canada on August 7, 1984.

Newton, M. and W.S. Overton. 1973. Direct and indirect effects of atrazine, 2,4-D, and dalapon mixtures on conifers. *Weed Sci.* 21(4):269-275.

- Ross, D.W., W. Scott, R.L. Heninger, and J.D. Walstad. 1986. Effects of site preparation on ponderosa pine (Pinus ponderosa), associated vegetation, and soil properties in south central Oregon. Can. J. Forest Res. 16:612-618.
- Wagner, R. and T. Harrington. 1987. CRAFTS data. Department of Forest Science, College of Forestry, Oregon State University, Corvallis, OR.
- White, D.E. 1987. Competitive interactions between Douglas-fir or ponderosa pine and whiteleaf manzanita. Ph.D. thesis, Oregon State Univ., Corvallis, OR. 132 p.
- Zavitkovski, J. and M. Newton. 1968. Ecological importance of snowbrush, Ceanothus velutinus, in the Oregon Cascades. Ecology 49:1134-1145.
- Zavitkovski, J., M. Newton, and B. El-Hassan. 1969. Effects of snowbrush on growth of some conifers. J. Forestry 67:242-246.

# Correlations Between Overtopping Vegetation and Development of Douglas-Fir Saplings in the Oregon Coast Range<sup>1</sup>

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**ABSTRACT.** The response of Douglas-fir (*Pseudotsuga menziesii*) saplings to overtopping vegetation on three northeast-facing sites in the Oregon Coast Range was studied for two years. As amount of overtopping brush increased, sapling growth (as indicated by size) generally decreased. Basal stem diameter growth was most reduced, but similar reductions in growth occurred for tree height and other morphological features.

West. J. Appl. For. 2(4):117-119, October 1987.

Overtopping vegetation is considered a severe obstacle to Douglas-fir regeneration in the moist Oregon Coast Range (Knapp et al. 1984, Walstad et al. 1987), and several studies have documented its influence on Douglas-fir survival and growth (Ruth 1956, 1957, Howard and Newton 1984, Cole and Newton 1986, 1987, Walstad et al. 1986). However, in cases where the degree of overtopping was determined in these studies, researchers relied on subjective ocular estimates rather than precise, objective measures. With the use of a fisheye photographic technique (Chan et al. 1986), we overcame this difficulty and were able to quantitatively measure the correlation between the degree of overtopping and subsequent development of young Douglas-fir saplings.

## STAND DESCRIPTIONS AND METHODS

Three clearcut sites were selected near Florence, Hebo, and Waldport in the Oregon Coast Range. Although

site characteristics were similar, the stock type used, method of site preparation, and resulting vegetation differed at each site (Table 1). The Florence site was planted in spring 1978 after burning, but a dense cover of red alder (*Alnus rubra*) and salmonberry (*Rubus spectabilis*) developed. Hebo was planted in spring 1978 without any site preparation, leading to a cover of sprouting salmonberry and vine maple (*Acer circinatum*). Waldport was planted in spring 1979 after herbicide spraying and prescribed burning. Vegetation on this site consisted of a moderate cover of salmonberry, red elderberry (*Sambucus racemosa* var. *arborescens*), and red alder.

The study was superimposed in early summer 1981 on plots established by USDA Forest Service researchers (Dimock, E.J., II, and D. Temple, unpublished 1980 report on study plan F.S.-PNW-1201-8030, on file at Pacific Northwest For. Res. Stn., Corvallis, OR). Their study consisted of control plots (i.e., no release from brush) and those manually released for two years (i.e., kept free of surrounding and overtopping brush) beginning in 1981. We used their plots to obtain a continuum of overtopping conditions. The control plots provided us with trees growing under a wide range of encroaching and overtopping brush, whereas the manually released plots provided us with trees kept free of competing vegetation. Reconstructing the height growth of seedlings in both types of plots by measuring their internodes back to the time they were planted indicated that all were of similar height at the time of planting and immediately prior to release. Presumably, this was because competing vegetation had not yet developed to the extent that it had significantly affected seedling growth.

It should be emphasized that the purpose of our study was not to compare trees in treated versus control plots; rather, the degree of overtopping (irrespective of treatment) was the primary factor analyzed.

Dimock and Temple had previously established a 50-point grid in each plot, consisting of 5 rows spaced 10 m

Table 1. Characteristics of the three study sites.

Site characteristic	Florence	Hebo	Waldport
Location	T17S, R11W, Sec. 18	T4S, R10W, Sec. 34	T14S, R10W, Sec. 29
Distance to coastline	6 km	6 km	11 km
Aspect	N.E.	N.E.	N.E.
Slope	80%	40%	60%
Annual precipitation	230 cm	250 cm	250 cm
Elevation	120 m	150 m	150 m
Soil mapping unit	443, 421	221 F	414
Soil series	Preacher-Bohannon Slickrock complex	(*)	Bohannon
Texture	Gravelly loam, loam	Loam	Gravelly loam
Average soil depth	120 cm	91 cm	76 cm
Douglas-fir site class	II	II	II
Stand site index (m, age 100)	55	52	49
Method of site preparation	Burn	None	Chemical/burn
Planting stock type	2-0 Douglas-fir	2-1 Douglas-fir	2-0 Douglas-fir
Planting density (trees/ha)	1074	1074	1074
Plantation age (yr) at first sampling	4	4	3
Major overtopping brush species	Red alder, salmonberry	Salmonberry, vine maple	Salmonberry, red elderberry, red alder

† Source: Badura et al. (1974).

\* Soil series not designated.

<sup>1</sup> Support for this project was provided by the CRAFTS cooperative research program in forest vegetation management research at the Forest Research Laboratory, Oregon State University, Corvallis. Paper 2130 of the Forest Research Laboratory.

VEGETATION MANAGEMENT IN PLANTATIONS OF THE PACIFIC NORTHWEST<sup>1</sup>

Michael Newton<sup>2</sup>

**ABSTRACT.**--Vegetation is managed deliberately on most cutover lands in the Pacific Northwest. Herbicides and/or fire are used for most of the acreage, with hand and machine methods minor contributors. Herbicides provide high degrees of specificity and selectivity, and low impact. Major gains in growth of conifers occur as the result of weed control in the first few years. Silvicultural vegetation management tools may also be used to advantage for improving other resource values.

OVERVIEW

Plantation management in the Pacific Northwest benefits from several historical, biological and economic factors. The Northwest is the last region in the United States with large inventories of mature timber to provide capital for reforestation. Being the last, cutting is occurring at a time when a historical pattern of inadequate reforestation continent-wide is threatening future supplies of high-value species, and when current technology has become capable of reversing this trend. The high growth rates of plantation Douglas-fir and other western conifers, coupled with their high value for both export and domestic use, place a high premium on plantation success. Indeed, the laws of several Western states require success in reforestation within 3-7 years after harvest.

This paper will outline the involvement of vegetation in reforestation success, and provide some data from Oregon forest practices as an example of how the problems are being handled. Finally, some examples are given to illustrate how vegetation management flexibility will permit the capture of a variety of resource management opportunities.

The productivity of sites in the Northwest, coupled with an abundance of native and exotic weed species, triggers a heavy and unnatural development of noncommercial cover on a high percentage of cutover sites. Because summers are dry in most of the region, herbaceous cover places high moisture stress on planted trees, causing mortality and reduced growth in all areas except coastal fog

zones. Understory shrubs with high sprout growth potential are abundant. Several light-seeded hardwoods and bird-vectored shrubs and hardwoods provide a ready source of woody plant cover where mature stands have been too dense to support heavy understories. On many sites, "hard-seeded" shrubs may remain dormant for centuries, waiting only for a fire or disturbance (e.g. fire or machine scarification) to germinate (Gratkowski, 1961). It is therefore hardly surprising that a wide array of vegetation management practices have developed in this region.

Vegetation control of some kind is practiced on nearly all sites considered for reforestation. After harvest, slash is often burned. Some operations in second-growth timber leave so little slash that no disposal is needed, and the logging itself is the chief site-preparation tool. In brushfield reclamation, various combinations of herbicides, cutting tools, bulldozers, and fire are used, but herbicides are part of most prescriptions unless held up by court action.

The slow juvenile growth habits of northwestern conifers require several years of free-to-grow status before they become strongly competitive. The most successful site preparation treatments are those which prevent sprouting of all species capable of dominating the plantation. Because this is seldom actually achieved, release in the second to fourth years is needed on a high percentage of plantations.

<sup>1</sup>A paper presented at the SAF National Convention held at Quebec, Canada on August 7, 1984.

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Reprinted from *Weed Science*, Volume 21, July 1973, Number 4Direct and Indirect Effects of Atrazine, 2,4-D, and Dalapon Mixtures on Conifers<sup>1</sup>M. NEWTON and W. S. OVERTON<sup>2</sup>

**Abstract.** Dalapon (2,2-dichloropropionic acid), injurious to Douglas fir (*Pseudotsuga menziesii* (Mirb.) Franco) and grand fir (*Abies grandis* (Dougl.) Lindl.) when used alone for weed control, was used with safety and even with beneficial effects when combined with atrazine [2-chloro-4-(ethylamino)-6-(isopropylamino)-s-triazine] and 2,4-D, [(2,4-dichlorophenoxy) acetic acid] at rates of up to 3.36 and 4.48 kg/ha, respectively. Harmful effects of dalapon were masked at rates up to three times those used for adequate control of grasses. This suggests a type of selectivity previously unreported. Interpretation of herbicide effects and interactions was made possible with an analytical model that separated effects of vegetation from those of herbicides on a causal basis. This technique included two-dimensional adjustment of the base of reference for a four-dimensional response-surface equation. This surface fit observed data as well as a single multiple-regression equation, which included all variables. This approach, however, estimated herbicide parameters with appropriate consideration of environmental data and permitted interpretation with respect to cause.

## INTRODUCTION

HERBICIDES are used routinely either in site preparation or in release of conifers from herbaceous competition. The general resistance of conifers to herbicides of the s-triazine group has led to a general adoption of simazine [2-chloro-4,6-bis(ethylamino)-s-triazine] and atrazine for establishing stands of conifers. These compounds have been used for reasonably effective weed control with a substantial margin of safety. Despite their general utility, however, they have limited capacity to control vegetation much beyond early postemergence. A selective grass herbicide is needed for applications in the growing season. Many resistant species, especially perennial grasses, persist after application of triazines alone, which suggests the need for a broader spectrum of activity.

One of the herbicides with both contact activity and considerable promise for weed control in conifers is dalapon. Contrary to the findings of Heidmann (2), Newton has consistently observed damage to conifers even during the dormant season, when applications of dalapon alone were made over-the-top to conifers.<sup>3</sup> Bennett (1) also reported damaging effects of dalapon on conifers. Hovind (3), however, has observed that a combination of simazine and dalapon produced a better response in conifers than simazine alone. This report describes an analytical procedure for studying interactions of herbicides under various influences of weeds and describes an important group of interactions in conifers between atrazine, dalapon, and 2,4-D.

<sup>1</sup>Received for publication December 15, 1971. Paper 785, Forest Res. Lab., Oregon State Univ., Corvallis, Oregon.

<sup>2</sup>Assoc. Prof. of Forest Ecol. and Prof. of Statistics and Forest Management, respectively, Oregon State Univ., Corvallis, OR. 97331.

## METHODS

Field studies were conducted during two consecutive growing seasons on level ground near Corvallis, Oregon. Field plots were established on soil of deep clay loam that supported stands of colonial bent grass (*Agrostis tenuis* Sibth.), meadow fescue (*Festuca elatior* L.), crested dog-tail grass (*Cynosurus cristatus* L.), velvet grass (*Holcus lanatus* L.), spotted catsear (*Hypochaeris radicata* L.), red sorrel (*Rumex acetosella* L.), and numerous annuals of lesser abundance. The area had been a pasture.

The 0.00405-ha plots were planted without tillage before treatment with herbicide. Three-year-old Douglas fir were planted in 1969 with a large rough-land tree planter. In 1970, 2-year-old seedlings, 10 each of Douglas fir and grand fir, were planted by hand. The seedlings were planted in early March of both years.

Herbicides were applied immediately after planting with a boom-type plot sprayer, which utilized 351 L/ha of total spray. In 1969, herbicide combinations included 0, 4.5, 8.9, and 13.5 kg/ha of dalapon with and without 3.4 kg/ha of atrazine as the wettable powder and various rates of atrazine alone up to 4.5 kg/ha. The two replications were completely randomized among 110 plots that included various other experiments. All rates are expressed as active ingredients.

The same herbicides were studied in 1970 together with 2,4-D in a more complete range of dosage rates. The three herbicides, atrazine, dalapon, and 2,4-D, were applied in complete factorial mixtures with the following rates of each herbicide: atrazine at 0, 1.1, 2.2, and 3.4 kg/ha; dalapon at 0, 4.5, 6.8, and 9 kg/ha; 2,4-D (propylene glycol butyl ether esters) at 0, 2.2, and 4.5 kg/ha. All rates are expressed as active ingredients. The 48 factorial treatments were replicated in two complete blocks that contained 96 plots and 1,920 trees.

Evaluation of weed control was based on ratings of grasses and forbs separately on a seven-point ocular rating system.<sup>4</sup> Tree response was rated on the bases of survival and a three-point vigor rating. The vigor rating included values of one for yellow, injured seedlings; two for normal, green, healthy seedlings; and three for bright, green trees that displayed lammas growth, a typical indicator of luxurious amounts of water and nutrients. The observations on conifers were expressed as a pooled survivability index, which was calculated as the product of survival percentage and vigor ratings. Index values of zero were recorded when all trees died and up to 300 when all trees survived and displayed high vigor. Because grand fir exhibits lammas

<sup>3</sup>NEWTON, M. and W. S. OVERTON. 1958 and 1968. Oregon State University, Corvallis, Oregon. Unpublished data.

<sup>4</sup>Ratings ranged from -2, which indicated substantially more than the original stand, through zero, which indicated no change to a maximum of +4, which indicated eradication.

Effects of site preparation on ponderosa pine (*Pinus ponderosa*), associated vegetation, and soil properties in south central Oregon<sup>1</sup>

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Eight years after installation, six site preparation treatments were compared for effects on soil chemical and physical properties, nonconiferous vegetation, and the survival and growth of planted ponderosa pine (*Pinus ponderosa* Laws.). Treatments included a logged-only control, ripping, brush blading, disking, chemical spraying (herbicide), and chemical spraying followed by disking. The brush-blade and chemical-disk treatments showed the greatest reduction in nutrient levels (total N, S, and C, and extractable P) compared with the control within the lower zone of soil sampled (15-25 cm depth). The chemical-only and disk-only treatments resulted in smaller decreases in nutrient levels, while ripping appeared to have only minor effects on soil chemical properties. Similar trends were noted in the upper soil zone (0-10 cm), although the differences were not statistically significant. Brush blading and both disking operations increased soil bulk density in the upper soil zone, but not in the lower soil zone. Aboveground biomass of shrubs was highest on the control treatment, followed by the rip, disk, brush-blade, chemical, and chemical-disk treatments. Pine survival was 78% or better for all treatments except the rip and control. The chemical-disk and chemical treatments resulted in the best height growth, followed by the disk, brush-blade, rip, and control treatments. A strong negative correlation existed between the amount of brush and pine biomass after 8 years. This study illustrates the importance of weed control to achieve maximum survival and early growth of planted pines in south central Oregon.

ROSS, D. W., W. SCOTT, R. L. HENINGER et J. D. WALSTAD. 1986. Effects of site preparation on ponderosa pine (*Pinus ponderosa*), associated vegetation, and soil properties in south central Oregon. Can. J. For. Res. 16: 612-618.

Après 8 ans, on a comparé les effets de six traitements de préparation de terrain quant aux propriétés physiques et chimiques du sol, à la végétation compétitive et à la survie et la croissance de plants de pin à bois lourd (*Pinus ponderosa* Laws.). Les traitements comprenaient un témoin où seule la récolte avait eu lieu, ainsi que du scalp, de l'élimination des débris de coupe, de la scarification, la pulvérisation de phytocide et les phytocides suivis de scarification. Les traitements d'élimination des débris et le traitement combiné phytocide-scarification ont causé la diminution la plus considérable des éléments nutritifs (N, S et C total et P disponible) en comparaison avec le témoin dans l'horizon de sol échantillonné (15-25 cm de profondeur). Les traitements de phytocide seulement et de scarification seulement ont provoqué de plus faibles réductions des éléments nutritifs, alors que le scalp n'avait que des effets mineurs sur les propriétés chimiques des sols. On a observé des tendances semblables dans l'horizon supérieur du sol (0-10 cm), bien que les différences n'étaient pas statistiquement significatives. L'élimination des débris et les deux traitements de scarification ont augmenté la porosité du sol dans l'horizon supérieur, mais non au niveau inférieur. La biomasse au-dessus du sol de la végétation compétitive était la plus considérable chez le témoin, suivie par le scalp, la scarification, le traitement au phytocide et le traitement combiné. La survie des plants de pin fut égale ou supérieure à 78% dans le cas de tous les traitements, à l'exception du scalp et du témoin. Les traitements chimiques et combinés ont résulté en la meilleure croissance en hauteur, suivis de la scarification, de l'élimination des débris et des témoins. On a établi une forte corrélation négative entre l'abondance de la végétation compétitive et la biomasse des plants de pin après 8 ans. Cette étude montre l'importance du contrôle de la végétation compétitive dans l'atteinte d'une survie et d'une croissance initiale maximales chez les plants de pin dans le centre-sud de l'Oregon.

(Traduit par la revue)

## Introduction

Proper planting with high-quality nursery stock is the most dependable method of regenerating ponderosa pine (*Pinus ponderosa* Laws.) in south central Oregon (Adams 1970; Barrett 1979; Roy 1983). In addition, most areas in need of

reforestation require site preparation (Zavitkovski and Wooda 1970; Barrett 1979). The primary purpose of site preparation is to create planting spots and provide initial control of competitive vegetation that can drastically reduce the survival and early growth of planted pines (Dahms 1950; Roy 1953; Baron 1964; Bentley et al. 1971; Crouch 1979; Tappeiner and Radosevich 1982).

The general types of site preparation available to forest managers include fire, mechanical, and chemical (herbicide) methods, used singly or in combination. This study compares six site-preparation treatments that result in various degrees of vegetation control and physical site disturbance. The treatments include a logged-only control, ripping, disking, brush blading, chemical spraying, and chemical spraying followed by disking.

<sup>1</sup>Although the research described in this article has been funded wholly or in part by the United States Environmental Protection Agency, it has not been subjected to the Agency's peer and administrative review. Therefore, the findings may not necessarily reflect the views of the Agency and no official endorsement should be inferred. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

<sup>2</sup>Revised manuscript received February 4, 1986.

**I/B** Public Participation  
and Consultation

*Wagner, R. and T. Harrington. 1987. CRAFTS data.  
Department of Forest Science, College of Forestry,  
Oregon State University, Corvallis, OR.*

*Document 1st page. Complete Document in  
Reference File.*

OBJECTIVES

The following are the specific objectives for Phase II:

1. Test the regression models predicting the size of individual 4- to 9-year-old Douglas-fir trees (developed in Phase I) in 1- to 5-year-old Douglas-fir plantations under a range of environmental conditions on the Siuslaw National Forest where salmonberry is the dominant seral species.
2. Refine the interspecific competition index or indices, selected in Phase I, to include the effects of herbaceous vegetation. Include the refined interspecific competition index or indices into regression models predicting the growth of individual 1- to 5-year-old Douglas-fir trees.
3. Compare the interspecific competition indices and select the index that most precisely predicts the survival of individual 1- to 5-year-old Douglas-fir trees, and can be efficiently interfaced with current plantation exams.
4. Quantify the relationship between the interspecific competition indices and the availability of light and soil water in the seedling environment. Utilizing this relationship, develop an environmental-resource based model that predicts the survival and growth of individual 1- to 5-year-old Douglas-fir trees.



White, D.E. 1987. Competitive interactions between Douglas-fir<sup>61</sup>  
or ponderosa pine and whiteleaf manzanita. Ph.D. thesis  
Oregon State Univ., Corvallis, OR. 132 p.  
Document 1st pg. Complete Document  
in Reference File  
CHAPTER 3

Effect of Whiteleaf Manzanita and Herbs on Growth  
of Juvenile Douglas-fir and Ponderosa Pine

Introduction

Growth of Douglas-fir [Pseudotsuga menziesii (Mirbel) Franco] and ponderosa pine (Pinus ponderosa Dougl. ex Loud) is related to the availability of site resources (Cole and Newton 1987, Oren et al. 1987). Competitors on a site will tie up some of the resources, hence reduction of competitors generally results in increased juvenile conifer growth.

The area under investigation in this study is in the interior foothills of the Siskiyou Mountains. It has been identified by Waring (1969) as a region where water is a primary limiting resource for plant growth. Dominant shrub communities of whiteleaf manzanita are characteristic of this region (Whittaker 1960, Gratkowski 1961).

Researchers in California have done work on the relationships between manzanita and ponderosa pine. Oliver (1979) examined the effects of tree spacing with and without whiteleaf manzanita. He found that brush competition reduced tree diameters up to the equivalent of nearly three years' growth. Bentley et al. (1971) studied the competitive effects of different levels of greenleaf manzanita (Arctostaphylos patula Greene) on pine and found brush control



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Document in Reference file

68

ECOLOGICAL IMPORTANCE OF SNOWBRUSH, *CEANOTHUS*  
*VELUTINUS*, IN THE OREGON CASCADES  
~~AGRICULTURAL~~ ECOLOGY

By

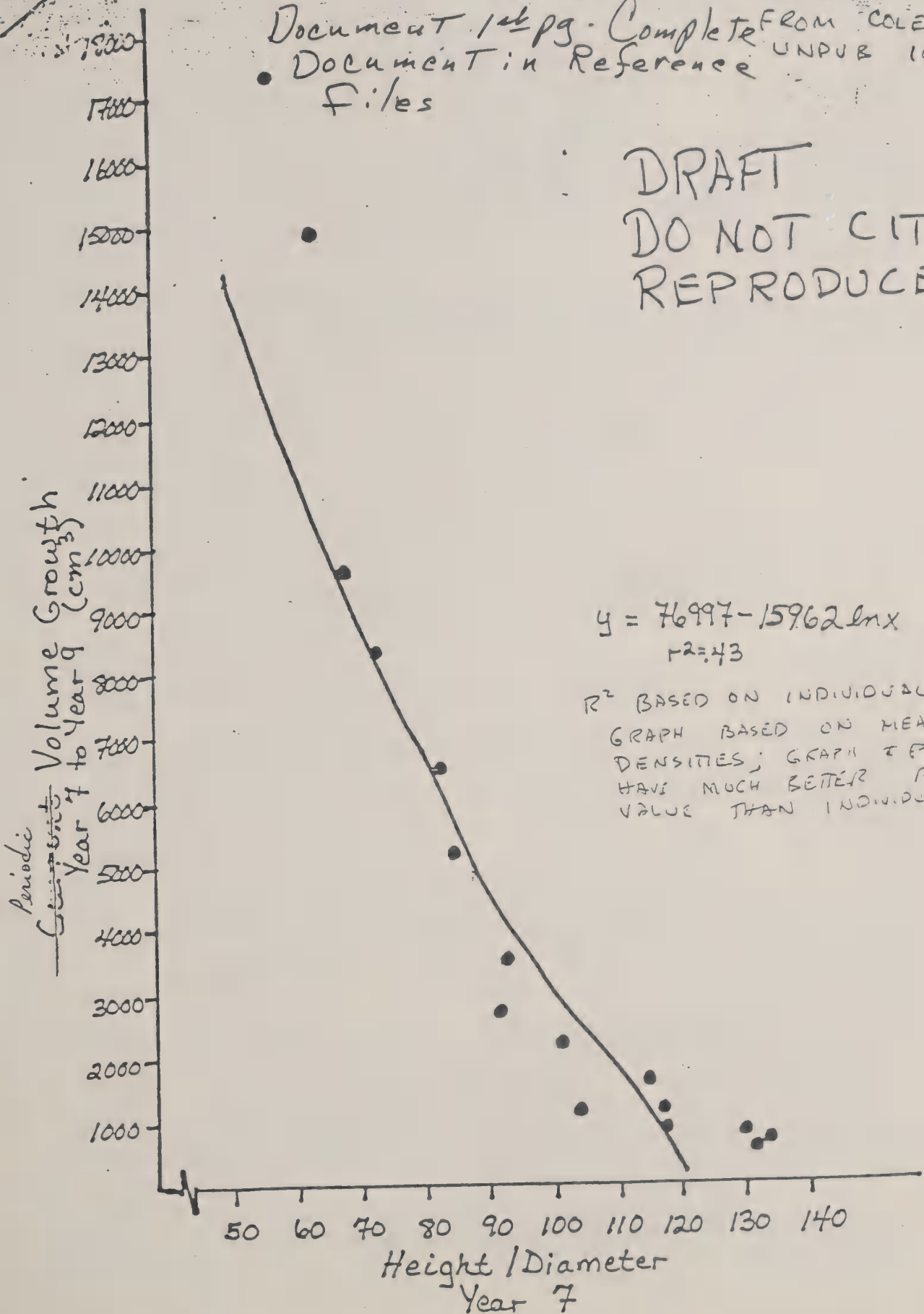
J. ZAWITKOVSKI AND M. NEWTON

Reprinted from *ECOLOGY*, Vol. 49, No. 6, Autumn, 1968

FIGURE 1

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February 14, 1988

U. S. Forest Service  
Vegetation Management Team  
Pacific Northwest Region  
P.O. Box 3623  
Portland, Or. 97208

Comments on the Draft Environmental Impact Statement for managing competing and unwanted vegetation in the Pacific Northwest Region of the U.S. Forest Service (Region 6).

These comments are submitted on behalf of So. Oregon Northwest Coalition for Alternatives to Pesticides (SONCAP).

SONCAP volunteers and members wish to express their support for the process Region 6 followed in developing its Draft Environmental Impact Statement for managing competing and unwanted vegetation (DEIS). We commend Region 6 for opening lines of communication with our representatives and for its sincere effort to draft a document through expanded public participation. We urge the decision maker to follow a similar balanced process by selecting an alternative that will significantly reduce or eliminate the use of chemicals in Region 6 forests and that embodies the principles of integrated pest management (IPM). The principle of IPM and the ecosystems approach will reduce pest damage to tolerable levels through a variety of techniques (with chemicals used as a last resort).

SONCAP supports Alternative D with additional modifications and reductions to the intensive forest management practice levels outlined in the DEIS. Current approaches to intensive forest management seek to maximize output by simplifying the ecosystem and adding agricultural type programs such as herbicides. Problems with such an intensive forest management program make the DEIS necessary and accentuate the need for a true IPM alternative. Our support for Alternative D is based on the understanding that Region 6 will put its major emphasis on prevention, (addressing the causes of vegetation problems), careful monitoring and identification of pests," and correcting deficiencies in the DEIS. Our comments and concerns on the DEIS include:

I. Undesirable Ecological Effects From Chemical Applications. The shortcutting of natural processes, and interfering with associated vegetation and the ecosystems they support, is assumed to have a minimal

effect throughout the DEIS. (ie. IV-61). Such effects are far from being fully understood, but at least some important points are known and need to be analyzed more thoroughly in the DEIS: (See Roy R. Silen's June 1982 report,[USDA], "Nitrogen, Corn and Forest Genetics").

- A. Lessened natural diversity
- B. Diminished nitrogen fixing plants
- C. Diminished organic matter containing various nutrients that maintain forest productivity.
- D. Diminished organisms that afford disease and pest resistance to "crop" trees.
- E. Unanticipated damage to crop trees from herbicides.
- F. Pre and post treatment wildlife monitoring has never been adequate to accurately protect effects on wildlife.
- G. Human health effects are largely unknown because of incomplete laboratory testing. This has prevented full registration of the pesticides used in forestry (i.e., until required testing is complete, the EPA cannot make the "finding of no unreasonable adverse effects").

II. Assumed Efficacy of Herbicide Use is not Operationally Documented.

- A. The studies quoted (appendices) are usually not applicable to operational use. Most test plots are meticulously tended in a way that makes application of results to overall management impractical (see attachment #1, Headwater's comments on FIR studies).
- B. Huge spray projects done in the past in Region 6 have not had post treatment evaluations of operational use thoroughly analyzed.
- C. Assumed increased yields have not been documented for even one "crop" rotation.

III. Assumed Economic Benefits of Herbicide Use are Highly Questionable.

- A. Cost/benefit ratios used are over simplistic and don't even consider all direct costs. (see attachment #2, "The Economics of Forestry Pest Management" by Randall O'Toole).
- B. Indirect costs, such as crop tree damage, loss of beneficial species and unknown health damage are not considered (see attachment #3, Risks, Costs, Benefits, and Rights," by Robert M. O'Brien).



- C. Foreplan estimates of timber values are too high.
- D. Economic benefits of manual release employment vs. aerial spray costs and lack of employment have not been analyzed.

IV. Each Forest Should Draft a Supplement to the DEIS and Its Own Forest Plan.

- A. All the above factors should be considered.
- B. Information gathered on alternatives to herbicides during the present injunction on herbicides should be examined. Have large problems resulted from non use?
- C. Identify what sites and species remain problematic.
- D. Explain what specific management changes have taken and could take place to prevent conditions that are problematic.
- E. Determine the need to treat sites under I.P.M. criteria and evaluate treatments.
- F. Examine back log acres and determine if treatment is necessary.
- G. Harvest methods (i.e. clearcutting) must be evaluated as a vegetation management system.

V. Information on Drift From Aerial Spray is Inadequate.

- A. The DEIS fails to discuss the problems of contamination by drift. Beyond a few general statements about buffer strips, optimum droplet size, and restricted environmental conditions, conclusions seem to indicate contamination by drift can only be diminished, but not eliminated.
- B. There are no mitigation measures provided to avoid endangering human habitation. A minimum 500 ft. buffer should be the standard.

VI. Some Appendix Sections Are Inadequate.

- A. See II A,B,C, for comments on Appendix A and C.
- B. Appendix D
  - 1. Except for 2,4-D, practically no human health studies are available for any of the herbicides.
  - 2. All of the long term health tests are, only done on the pesticide's "active" ingredient not the "inert" ingredients.


3. Herbicides proposed for use are not fully registered with the E.P.A.
  4. Tests for certain kinds of effects are not required and are therefore largely missing.
  5. Known problems (i.e. cancer) are explained as reasons for eliminating some chemicals from Alternative E. These reasons are significant enough to eliminate these chemicals from any alternative.
  6. "Margins of Safety," have an admitted absence or lack of data.
- C. Appendix H. discloses major problems with the quality and completeness of testing.

#### VII. General Comments.

- A. By emphasizing prevention, avoiding problems, and treating the site specifically (as required in Alt. D), why wouldn't sustained yield capacity be increased?
- B. The prevention strategy of Alternative D and the estimated resulting reduction of acres that will need treatment will have a more positive implication for jobs, present net value, long term sustained yield, and health risks. Although the DEIS admits that the future effectiveness "will be near current levels" and that the costs are similar, the benefits obtained are all less. This discrepancy does not make sense and therefore needs serious analysis and discussion in the final EIS.
- C. The DEIS seems quite deficient in its discussion of herbicide effects on water, soil, wildlife, and fish. Without more data how can the document conclude that there are no significant impacts to these resources?
- D. IPM process and structure should insure that all other options to herbicides are fully explored before they are considered for use as a last resort (see attachment 4, "Defining and implementing Vegetation IPM," by Norma Gier).
- E. The 60-63% reduction in emissions from prescribed burning in Alternative D is very commendable and additional reductions should be considered if at all feasible.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in cursive script, reading "Louise Racataian".

Louise Racataian  
SONCAP Volunteer Coordinator  
P.O. Box 402  
Grants Pass, Or 97526  
(503)474-6034



## SOUTHERN OREGON TIMBER INDUSTRIES ASSOCIATION

2680 NORTH PACIFIC HIGHWAY • MEDFORD, OREGON 97501 • PHONE (503) 773-5329

February 12, 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, Oregon 97208

Dear Gary:

Attached please find the Southern Oregon Timber Industries Association's (SOTIA) response to the Forest Service Pacific Northwest Region Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation. SOTIA is a 130 member association of contract loggers, log truckers, mills, road builders, and associates who provide goods and services to the forest products industry.

SOTIA believes that herbicides are one of several vegetation management tools which are essential to effective, efficient forest management here in the Pacific Northwest. The loss of herbicides would have a significant impact on future timber supply in Southern Oregon.

We also believe that the decisions the Forest Service make in its new vegetation management program will send a strong message to the public; a message which may carry serious implications for the future management of private lands, both timbered and agricultural. This situation only underscores the importance of implementing a vegetation management program which includes the full use of EPA registered herbicides on national forest lands in Region 6.

Thank you for considering SOTIA's comments as you prepare the final vegetation management EIS.

Sincerely,

A handwritten signature in cursive script that reads "Roxi K. Smith".

Roxi K. Smith  
Staff Forester





Southern Oregon Timber Industries Association

2680 North Pacific Highway Medford, Oregon 97501 773-5329

SOUTHERN OREGON TIMBER INDUSTRIES COMMENTS  
IN RESPONSE TO THE  
FOREST SERVICE, PACIFIC NORTHWEST REGION  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
FOR MANAGING COMPETING AND UNWANTED VEGETATION

I. THE FOREST SERVICE'S USE OF DRAFT FOREST PLANS AS A BASIS FOR THE DEIS UNDERMINES NEPA AND RENDERS THE DEIS LEGALLY VULNERABLE.

There are several legally questionable facets of the Region 5 draft forest plans which effectively limit the productivity of each forest. Among the most prominent is the Forest Service's designation of minimum management requirements (MMRS).

MMRS are the Forest Service's interpretation of the National Forest Management Act (NFMA) regulations. When it developed MMRS, the Forest Service arbitrarily allocated forest land to non-timber uses without public review and comment, and without the input of an interdisciplinary team. This derivation of MMRS violates the National Environmental Policy Act (NEPA), NFMA, the Multiple Use-Sustained Yield Act, and the Administrative Procedures Act. The DEIS is therefore legally deficient because it is built fully upon the legally flawed draft forest plans.

The Forest Service's use of the draft forest plans as a basis for analyzing the impacts in the DEIS makes a mockery of the NEPA process. The Forest Service is clearly assuming implementation of the forest plans as they were released in draft form, irrespective of public review and comment. According to NEPA, the decision maker must consider public input to a draft EIS, which may require substantial changes in the final EIS. The Forest Service undermines the NEPA process by assuming in the DEIS that all the draft plans in Region 6 will be implemented, as are.

SOTIA RECOMMENDS THAT THE DEIS BE REWRITTEN OR SUPPLEMENTED SO THAT IT IS BASED UPON THE EXISTING FOREST PLANS THAT THE FOREST SERVICE IS CURRENTLY OPERATING UNDER.

II. THE RANGE OF ALTERNATIVES IN THE DRAFT ENVIRONMENTAL IMPACT STATEMENT IS INADEQUATE.

The Forest Service has not analyzed an adequate range of alternatives in the "Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation" (DEIS). Of the seven alternatives considered, only one produces positive social and economic effects. The Forest Service must develop and analyze additional alternatives which have positive social and economic impacts in order to complete the range of alternatives.

SOTIA RECOMMENDS THAT THE FOREST SERVICE DEVELOP AND ANALYZE ADDITIONAL ALTERNATIVES IN A SUPPLEMENT TO THE DEIS WHICH FILL IN THE

RANGE OF POSITIVE SOCIAL AND ECONOMIC IMPACTS.

The most serious deficiency in the DEIS range of alternatives is the omission of an alternative that represents the existing management of the national forests in Region 6. This point is discussed in detail below.

III. THE DEIS VIOLATES THE NEPA MANDATE TO ASSESS IMPACTS RELATIVE TO 'NO-ACTION' ALTERNATIVE.

NEPA requires that a 'no-action' alternative be included and utilized as a benchmark with which to compare the effects of the action alternatives. NEPA procedures regarding the 'no-action' alternative were clarified by the Council on Environmental Quality in the "40 most asked questions" about NEPA:

"The first situation might involve an action such as updating a land management plan where ongoing programs initiated under existing legislation and regulations will continue, even as new plans are developed. In these cases "no action" is "no change" from current management direction or level of management intensity... Therefore, the "no action" alternative may be thought of as continuing with the present course of action until that action is changed. Consequently, projected impacts of alternative management schemes would be compared in the EIS to those impacts projected for the existing plan..."

In the DEIS, Alternative B is the reference or 'no-action' alternative to which other alternatives are compared. Alternative B is predicated upon the implementation of the draft forest plan released this past year in Region 6. These draft plans, in sum total, represent a potential timber harvest or Allowable Sale Quantity (ASQ) level of 3.8 to 4.3 billion board feet. This is a 20 to 25% reduction from the potential yield of 5.097 billion board feet in the existing forest plans. Thus, Alternative B does not represent the existing management of the national forests in Region 6 and cannot be considered a 'no-action' alternative. Using Alternative B as a basis for comparison results in a 20 to 25% underestimate of the impacts of the alternatives, in terms of jobs, harvest levels, and economics.

SOTIA RECOMMENDS THAT AN ALTERNATIVE THAT REPRESENTS THE POTENTIAL YIELD OF THE EXISTING MANAGEMENT PLANS FOR THE NATIONAL FORESTS IN REGION 6 BE INCLUDED IN A SUPPLEMENT TO THE DEIS. THIS ALTERNATIVE SHOULD BE DEEMED THE 'NO-ACTION' ALTERNATIVE, AND USED AS THE BASIS FOR ANALYZING THE IMPACTS OF ALL THE OTHER ALTERNATIVES.

IV. THE FOREST SERVICE MUST PROVIDE 'IMPACT ANALYSIS ON A FOREST BY FOREST BASIS.

The NEPA process is further confused by the concurrent release of the DEIS and individual draft forest plans. The Forest Service has not made it clear to the public how the DEIS and draft forest plan will impact one another, or what the resulting effects will be on a specific forest or local area. Impact information based on the "average forest" in Region 6 tends to mask the extremes and make assessment of specific forest impacts impossible.

THE FOREST SERVICE SHOULD CLEARLY DEFINE IN A SUPPLEMENT TO THE DEIS HOW THE DEIS AND THE DRAFT FOREST PLANS WILL INTERACT. ALSO, IMPACT ANALYSIS ON A NATIONAL FOREST BY NATIONAL FOREST BASIS SHOULD BE PROVIDED.

V. THE "LAST OPTION" CONCEPT IN ALTERNATIVE D IS NEBULOUS AND UNACCEPTABLE.

Alternative D states that herbicides are to be used as a vegetation management tool only as the "last option". As described in the DEIS, the "last option" concept is nebulous and subject to a wide range of interpretation. The end result of implementing Alternative D would be to put the responsibility for interpreting "last option" in the hands of the courts. The "last option" concept will provide the legal loophole for the appeal of any proposed herbicide use.

THE "LAST OPTION" CONCEPT IN ALTERNATIVE D RENDERS THAT ALTERNATIVE UNWORKABLE AND TOTALLY UNACCEPTABLE TO SOTIA.

VI. SOTIA'S PREFERRED ALTERNATIVE

SOTIA supports the use of herbicides registered by the Environmental Protection Agency for use in the forest environment. This use is an essential and effective forest management tool. SOTIA does not, however, support the use of any vegetation management technique that is not based on sound field data and careful application.

SOTIA believes, based upon our review of the DEIS, that a modified form of Alternative G best meets SOTIA's expectations for a vegetation management program for Region 6.

The modifications SOTIA finds necessary to Alternative G are as follows:

- 1) Inclusion of SOTIA's recommendations detailed in this response.
- 2) The mitigation measures outlined in the DEIS have not been adequately evaluated as to their effectiveness in decreasing risk to humans or the environment. The Forest Service must demonstrate in a supplement to the DEIS that it can manage the

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risk associated with the implementation of Alternative G.

- 3) The number of acres treated for growth enhancement under Alternative G as presented in the DEIS appear low. All suitable and capable forest acres should be managed for growth enhancement. The Forest Service must adjust its estimates of growth enhancement acres to include all suitable and capable acres.







Stein (1984) Coastal reforestation systems study....

As pointed out above, the study provides no data which would permit a conclusion that average growth results from all tests can be used to estimate or predict growth over the region or within any forest within the region. No evidence is cited which indicates that the sites chosen reflect an accurate statistical sampling of the entire region.

As also pointed out above, the combined data, even as to specific sites, cannot be differentiated as to effects resulting from the various planting or treatment regimes.

Owston et al (1986) Monitoring Growth...after release.

The Owston study may be the most complete and thorough study cited in Appendix A.

However, the author's do not suggest that a five-year result on six sites, showing a statistical increase in diameter growth, can or should be used to predict a specific increase in yield on all sites forest-wide, at the end of 80 to 100 years. Nor is any claim made that the six tests sites chosen represent a cross-section of all forest sites within the region.

Fiske (1983) Estimating effects of competing plants, etc.

Fiske's use of a "consensus of professional judgement of a good cross-section of our peers" and his estimates of yield losses, without supporting data, fails every rational or scientific standard and provides no basis for any forest-wide predictions of any sort. He should have concluded that because his "methodology was rough" his results would be rough too.

His data on Douglas fir, the most predominant commercial tree in the Northwest, ranges for inadequate to non-existent. His suggestion for second-decade release treatment can hardly be called a valid "recommendation."

Roy (1976) Effects of competing vegetation, etc.

Roy purports to measure the effects of tanoak growth on Douglas fir on two California sites (I have only addressed findings in Appendix A dealing with Douglas fir.)

The Blythe Cutover study produces no evidence to show that results of the two tanoak tests can be applied generally on all Douglas fir forests in the Pacific Northwest region. The study, therefore, provides no basis for consideration.

Sterling

4

Roy (1981) Effects of competing vegetation on conifer...

Portions of this study may have been sent but were not identified.

Curtis et al (1982)

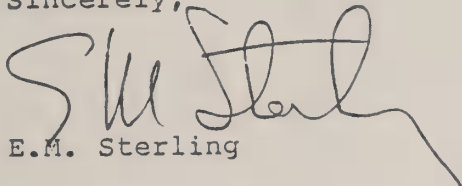
The material supplied, which consisted of a cover and contents page, provides no basis for comment. Suffice it to say that thinning yield tables, used in some herbicide growth prediction estimates, have been based on extrapolations "far beyond available data." Authors of those thinning tables have said that their predicted growth values, although appearing reasonable, did not demonstrate their validity.

Harrington and Wagner (1986) cited on page A-15, para. 3 in Appendix A was not included in the documents sent, nor was the work listed in the reference section.

I realize that the public comment period closed February 15 and understand, as you so state, that it may not be possible for you to respond to these comments. I do, however, request that this letter be made part of the printed record noting that it was received late and because of that was included without agency comment.

Thank you for your courtesy in this matter.

Sincerely,



E.M. Sterling

cc: Congressman Thomas Foley  
Congressman Mike Lowry  
Senator Brock Adams  
Environmental Defense Fund Inc.  
Northwest Coalition for Alternatives to Pesticides







The age of trees tested ranged from 3 to 39 years. Measurement methods ranged from height only, height and diameter, basal area, percent of canopy, stem volume and needle vigor with comparisons reported in terms of volume, height, diameter, basal area and tree vigor.

Data were expressed in percentages, times greater or less, inches, feet, centimeters, vigor and merchantable volume. Where percentages were used, some were stated in terms of differences between controls and tests, others as increases or decreases, and some in terms of over-all growth of control or test trees. In some instances, percentages were expressed in terms of a 100 percent baseline for controls.

The herbicides tested included 2,4-D; 2,4,5-T; 2,4-DB; Pictoram, glyphosate, fosomine, and phenoxy herbicides.

In many of the cited studies, test sites were not defined according to rigorous criteria as outlined by Minore et al. (1984). A number of the studies, likewise, did not report procedures involving plot selection, layout, description and history, treatment monitoring, measurement, etc., as outlined in detail by Owston et al. (1986). No papers were cited establishing any links between species data which would justify use of material compiled on other species in the development of standards for Douglas fir.

To summarize the 9 cited available papers or abstracts which purported to measure growth effects of herbicides on Douglas fir:

1) An abstract of a Peterson and Newton (1982) paper published by Champion International Corporation described a 4-year test involving the use of 2,4-D and glyphosate applied to 9 trees in a 5-year old stand, randomly assigned to each of three treatments, and to 5 trees in a 10-year old stand, randomly assigned to each of four treatments. The study reported growth volume, measured in height and diameter, on sprayed plots as between 2 and 4 times that of growth volume on unsprayed plots.

The investigators did not justify the statistical significance of findings involving 5 or 9 trees randomly assigned to various treatment tests. Nor were measurement methods identified.

2) Gratkowski (1979) in an unpublished study available in abstract reported no gains in heights but gains of between 1.75 and 3 times in the diameter on 2-foot tall trees in an unreplicated study using 2,4,5-T, on five clearcuts over 5 years. On another site, over 10 years, he reported gains of 1.7 to 2.8 times the growth in height over 2-foot trees on untreated sites.

The abstract did not reveal the number of trees measured, the statistical significance of the measurements, nor the details of the measurement techniques.

3) Gratkowski and Lauterbach (1974) in a paper published in the Journal of Forestry, reported on 6-year tests with 2,4-D and 2,4,5-T on two sites in the Oregon Cascades using aerial sprays, basal spraying and cut/stump spraying. The investigator cited no measurements of growth either at the beginning or end of the tests but reported growth on sites receiving aerial sprays as ranging from 171 to 255 percent or 1.7 to 2.5 times that of trees on unsprayed plots, or increases in growth ranging between 71 and 155 percent or .7 times and 1.5 times that of unsprayed plots.

Again, the study made no analysis of the statistical validity of the growth gains, no report on measurement techniques, nor on efforts to randomize plots or measured trees.

4) Allan et al. (1978) in a study published in International Pest Control reported the "most effective" growth gains of 15 percent in height and 74 percent in stem volume over 6 years tests using the herbicide 2,4-DB in five different concentrations on sites containing between 18 and 36 seedlings in each concentration group.

The tests involved the application of the herbicide combined with bark in a 25 square foot area around test seedlings, a manner of application seldom used in a real-forest situation.

5) Lauterbach (1967) in an abstract of a paper in the Proceedings: Herbicides and Vegetation Management reported diameter increases of between 2 and 2.5 times that of unsprayed trees using phenoxy herbicides in tests on five height classes (2 to 20 feet) on two sites over 5 and 6 year periods.

A table accompanying the abstract displayed height data and a "growth ratio" only. The number of trees in the 9 plots in two locations ranged from 1 to 36. The statistical validity of the growth gains were not reported.

6) McDonald and Fiddler (1986) in a paper published by the Pacific Southwest Forest and Range Experiment Station applied 2,4-D using several manual and chemical treatment methods. They found no significant difference in tree height but reported that the diameter of trees increased overall by .69 $\pm$ .30 inch over the 4-year study period.

One questions how the diameter of a tree can be measured to the hundredth of an inch or what weight should be given a measurement which can range from .39 to .99 inch, a difference of 300 percent.

7) Radosevich et al. (1976) in Weed Science described tests involving three herbicides, 2,4-D, 2,4,5-T and Picloram on 15-year old trees over a 10-year period.. They reported gains in basal area growth ranging from 260 to 451 percent above a 100 percent baseline growth of untreated controls.

The measurement of the 260 percent growth above the baseline







# I/B Public Participation and Consultation

Sterling: Comments on Appendix A

7

In the introduction to Appendix A the Forest Service recognized major problems in the lack of linkage between the short-term growth effects of herbicide use (cited above) and the precise long-term yield increases predicted by the agency and used without qualification throughout the impact statement.

To quote the Appendix:

"It is difficult, if not impossible, to extrapolate from highly site-specific growth effects to broad scale generalizations."

"(C)ompetitive interaction between and within species is not completely understood, the type and degree of response is known to depend on site-specific variables."

"Controlled experiments produce specific results that may not be representative of those occurring in a more heterogeneous environment. For this reason, there is an inherent danger of exaggerating broad-scale timber yield effects based on controlled research."

Again, in still more detail, the introduction notes the "uncertainty involved in extrapolation from site-specific results to general observation, based on a limited number of studies. This uncertainty is then compounded with the expansion of acreage estimates. For this reason, the time yield effect estimates for each vegetation complex will involve some large statistical error" and represent an "approximate mean of a range of results." [Commentator's note: These estimates are listed without that qualification in the main body of the impact statement.]

"Many of the studies being used in this analysis," Forest Service writers say, "record an inconsistent high increment response following treatment," and are "occasionally erratic or conflicting."

The introduction points out too that published information pertinent to Oregon and Washington covers only a short time frame during the management cycle. This means, the Appendix says, that translation of early growth and yield effects into managed yields over 80 to 120 years involves "much extrapolation and uncertainty."

Forest Service writers agree that the impact statement assumes a generic strategy for forest regeneration, including herbicides, and ignores the specific limitations of individual sites. The agency does this, the writers say, "for ease of modelling of timber yield over time."

The Forest Service admits to that the "experience and opinions of Forest Service field practitioners were used in those cases where the literature is inconclusive." The agency, however, makes no attempt to justify the validity of "experience and opinions" which lacks foundation on reported scientific data.

## II

The Forest Service failed to explain or justify (a) its selection of studies relied upon in determining the specific "yield effects" for various Douglas fir complexes; (b) its choice of the specific percentage "falldown" factors (also see sub section III) to be used in computing expected yield gains or losses, and (c) the manipulation of factors in the prediction of full yield potentials or programmed harvest-allowable yield quantities.

The Forest Service defined five steps in the data-extension process.

1) It selected "data sets" from research papers which it believes represent growth trends up to 15 to 20 years.

2) It then extended those short-term estimates in a full-term yield simulation to display what it describes as "the per-acre yield difference between the operational site potential and the 'little or no vegetation management' situation" without defining any element of "vegetation management" beyond herbicides.

3) It next identified vegetative conditions and operational factors which "show efficacy differences between herbicide use and other available tools."

4) Then it "expanded" its data to the total affected area to display yield effects related to the suspension of herbicide use.

5) Finally, it considered the impact of the findings on the forest's "programmed harvest-allowable sale levels."

Unfortunately, the Forest Service offers an incomprehensible, unexplained and probably unexplainable confusion of selections, computations and predictions in carrying out its multi-step effort.

For example:

(A) In projecting the "yield falldown" of untreated Douglas fir in a vegetative complex of red alder, the agency relies on an unpublished paper by Turpin et al. (1980) prepared for the Siuslaw National Forest and not available in the School of Forestry Library of the University of Washington, and on Walstad et al. (1986), the retrospective study based solely on one mid-term string of data which did not consider non-herbicide vegetation management factors.

Turpin, Appendix authors report, predicted yield reductions of 28 to 29 percent (estimates accurate within 1 percent?) in the absence of vegetation management, with no indication of what







claimed a 65 percent "falldown" without vegetation management, assigning only 19 percent of that to herbicide use--without explanation either.

In this vegetative complex, as in the others, it includes the maximum 65 percent expectation in its allowable future sale quantity estimates.

(The agency states that it arbitrarily adjusts its predicted yield effects south and west within subregions to reflect the relative severity of moisture stress, intensity of site competition and the historic reliance on herbicide use by adding or subtracting 50 percent of the yield effects predicted.

(However, the Forest Service offers no details to support the 50 percent factor nor does it display how the percentage was applied in any of its yield projections.)

### III

The Forest Service fails to justify its backward method of estimating herbicide growth impacts. In estimating the impacts, the Forest Service first generates a purely fictional final harvest estimate for a "full yield forest using all available vegetation management techniques" and then predicts a specific "falloff" from that estimate if herbicides and other practices are not used.

Rather than moving its predictions of growth forward from reality, based upon cited herbicide/growth studies, the Forest Service moves it backward using a full-yield simulation process "to display", as the agency says, "the per-acre yield difference" at the end of 80 to 120 years between the full-yield "potential" of a site and a "'little or no vegetation management' situation."

The agency offers no reason for estimating its way back to reality from a simulated future, rather than predicting gains forward from reality, nor does it attempt to explain how or why evidence from its cited reports and studies is manipulated (see 3 above) to reach the backward result.

It should be noted that all yield simulation tables are heavily qualified with disclaimers about long-term predictions.

### IV

The agency fails to demonstrate with either scientific tests or logic that herbicides of every kind, applied in any manner on every site in a Douglas fir forest will produce an constantly uniform average measurable growth result.

If cited field studies (see above) demonstrate anything they show that different herbicides have different growth impacts in different concentrations, at different times of the year, on different sites, and with different methods of application.

As the agency itself admits, it is difficult if not impossible to predict herbicide results on every site in every forest even under what appear to be similar conditions. The results cited in individual tests, it seems clear, can be applied only to that site or others exactly like it.

And as a review of the papers on various tests reveals, the test sites themselves in many case were not defined precisely enough in terms of moisture, exposure, soil, or even vegetation, etc., to permit precise prediction on another site.

Nor does the agency demonstrate that test results for different herbicides can be rationally averaged even within the various vegetative complexes reviewed in the Appendix.

The impact statement suggests that individual forests will be permitted to use whatever herbicides in whatever manner they judge best for sites in forests under their control. But the Forest Service fails to demonstrate how such freedom may effect their region-wide predictions of growth or lack of it on which regional or even forest-wide harvest levels may be based.

#### ALTERNATIVES NOT CONSIDERED

The Forest Service in its impact statement fails to address several alternatives important in defining issues of herbicide use more precisely and clearly.

Not considered are:

1) An option limiting herbicide use solely to sites where prior studies demonstrate clearly that specific growth may reasonably occur from specific treatments.

Rather than attempting to prepare an overall, region-wide program aimed at specific results, the region should offer instead guidelines and goals which would required managers to identify the specific studies on which they wish to rely and to demonstrate from data in those studies that their proposed program will meet guideline goals.

2) An option which would prohibit any increase in timber harvests following herbicide use until an actual increase in growth has been measured in the forest.

Rather than risking damage from over-harvest or failure to attain growth goals, the measure-and-then-cut options would permit forests to increase harvest levels as the result of herbicide use, but only after actual growth has occurred. Many European forests follow this procedure.

3) An option to delay all herbicide use until shortcomings in existing studies, as identified by the Forest Service itself in the introduction of Appendix A, have been remedied.



As the introduction of the Appendix demonstrates so clearly the present state of tested information on herbicide use and expected growth does not permit long-term future projections.

This failure is due in large part to past failures by the Forest Service to conduct the kinds of detailed tests which science and logic so clearly require. Herbicides have been used on the region's forest now for several decades. Had early studies been conducted as many demanded, today's questions would not be necessary. There is no reason why the public should suffer the future of its forests because of the agency's past failures.

4) An options to establish an on-going program of continually monitoring actual growth in the forest no matter what management programs are followed.

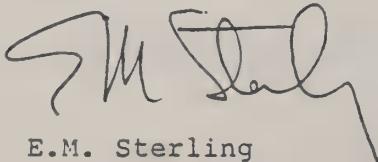
The idea of "monitoring" a management program by simply counting the number acres sprayed with a number pounds of herbicide applied, or the volume of trees thinned on another number of stands does not "monitor" anything except performance. The future of the national forests rests not on performance but on growth which should be watched and reported continually.

#### CONCLUSIONS

The Draft Environmental Impact Statement does not support a finding that herbicide use on regional forests will stimulate yield of Douglas fir in any of its vegetation complexes in a finite amount over the rotation life of the complexes.

Nor does the draft statement provide any basis for increasing harvest levels until actual increases in growth have been measured on the ground in those forest complexes.

I request that these comments be included in any publication by the Forest Service of comments on the Impact Statement.



E.M. Sterling

cc: Congressman Thomas Foley  
Congressman Mike Lowry  
Senator Brock Adams  
Environmental Defense Fund Inc.  
Northwest Coalition for Alternatives to Pesticides

DEVELOPMENT  
8001 7-266-569-2574  
Steel Route  
Ashford, W.V. 26031

Jan. 13, 1988

Dear Mr. Tarsen,

I would like to voice my opinion to the DEIS in favor of alternative D because I believe it offers the most balanced approach to forest management. I appreciate that it takes an IPM approach to vegetation and that it uses herbicides only as a last resort. I would like to have the Forest Service have the health concerns in alternative E superimposed on alternative D to further eliminate the use of herbicides.

I encourage you to manage the forests with the least disruption to the entire ecosystem, emphasizing monitoring, data collecting, and evaluation of all practices to ensure minimum impact. I hope the management plan will favor developing and implementing management methods which will reduce the conditions which favor the growth of unwanted vegetation. I look to the Forest Service to be a pioneer in non-chemical alternatives so that the private timber industry will have a model to emulate.

I certainly hope you will not rely on EPA's approval of herbicides to justify their use! Most of the health effects studies are flawed and inadequate, the "secret" inert ingredients are untested, their leaching into our groundwater is unacceptable!

When you are considering the economics of herbicide use, please consider the long-term costs of your responsibility to clearing up contaminants as well as compensations to people for adverse

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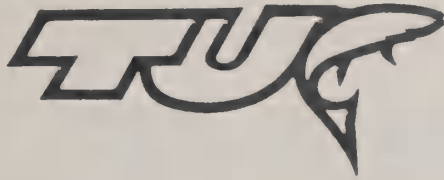
JAN 19 1988

health conditions attributable to exposure.  
I appreciate the level of public  
participation encouraged under alternative D.

My personal hope is that in the previous  
four years of not using herbicides that the  
Forest Service has discovered some plausible  
non-chemical alternatives. I believe people much  
prefer a healthy environment to highest profits.

Sincerely,

Dwight Thompson



*Trout Unlimited  
of Oregon*

JAMES F. TORRENCE  
REGIONAL FORESTER  
PACIFIC N.W. REGION  
USDA, USFS  
BOX 3623  
319 S.W. PINE  
PORTLAND, OR 97208

30 DECEMBER 1987  
RE/ VEGETATIVE MANAGEMENT  
DRAFT ENVIRONMENTAL  
IMPACT STATEMENT

DEAR FORESTER TORRENCE,

THE OREGON COUNCIL OF TROUT UNLIMITED HAS BEEN FOLLOWING THE NEPA PROCESS FOR MANAGING COMPETING AND UNWANTED VEGETATION FOR OVER A YEAR. WE HAVE REVIEWED THE DRAFT ENVIRONMENTAL IMPACT STATEMENT AND WOULD LIKE TO PROVIDE THE FOLLOWING COMMENTS.

AS WITH OTHER DEIS'S, WE WOULD LIKE TO RESTRICT OUR COMMENTARY TO FISHERY RELATED PARAMETERS.

FROM OUR PERSPECTIVE, THE PHILOSOPHY OF ALTERNATIVE D APPEARS MOST SOUND. HOWEVER, THE SOMEWHAT FLAGRANT TREATMENT OF HERBACIDES AND THEIR RELATIONSHIP TO THE FISHERY HAS CONVINCED US TO SUPPORT ALTERNATIVE A.

WE WERE ENTICED BY ALTERNATIVE C, WITH ITS NATURALIST'S APPROACH TO VEGETATIVE MANAGEMENT, BUT DECIDED THAT YOUR PERCEPTION OF JOB LOSS AND OF WILDFIRES, THOUGH NOT AS SEVERE AS DESCRIBED, DOES HAVE MERIT.

TO CLARIFY OUR PERCEPTION OF YOUR TREATMENT OF HERBACIDES, WE WOULD LIKE TO DIRECT YOUR ATTENTION TO THE STATEMENTS ON PG. IV-72. "THE LIKELIHOOD OF EXPOSURE TO HERBACIDES USED FOR VEGETATIVE MANAGMENT IS LOW. IF EXPOSURE WERE TO OCCUR, CONCENTRATIONS WOULD BE OF SHORT DURATION."

TO VERIFY THE FIRST SENTENCE, WE COMPARE TABLES IV-13 AND IV-9. THE TWO CHEMICAL COMPOUNDS WHICH ARE ON BOTH TABLES ARE 2,4-D AND PICLORAM. OUR INTERPRETATION OF THE COMPARISON IS THAT THE RECOMMENDED CONCENTRATION MAXIMUM FOR THESE COMPOUNDS WAS EXCEEDED IN EACH CASE. THAT IS, IT APPEARS TO US THAT LIKELIHOOD OF EXPOSURE TO HERBACIDES USED IN VEGETATIVE MANAGEMENT IS NOT LOW. THIS CONCLUSION COMES FROM USING THE ONLY BASIS OF VERIFICATION AT OUR DISPOSAL, YOUR OWN TABLES.

---

*Protecting and Improving Your Fishing Future*

Post Office Box 6225  
Bend, Oregon 97708



ORCTU/REGION VI VEGETATIVE MANAGEMENT P.2

REVIEW OF THESE TABLES CAUSED US SOME PROBLEMS. WE QUESTION THE CATEGORY OF "MOST SENSITIVE SPECIES AFFECTED" IN TABLE IV-9. VIZ. IS THIS THE MOST SENSITIVE SPECIES TESTED? OR TRULY THE MOST SENSITIVE SPECIES AFFECTED? WE ALSO QUESTION THE CRITERIA ON THIS TABLE. REASONS FOR THE CATEGORIES SHOULD BE EXPLAINED FOR THIS TABLE TO BE COMPREHENSIBLE. IF .05 PPM ARE THE MAXIMUM CONCENTRATION OF 2,4-D ACCEPTABLE TO A BLUEGILL IN A SMALL IRRIGATION DITCH, THEN WHY IS THE FIGURE .01 PPM OR .005 PPM IN NAVIGABLE POTABLE AND IRRIGATION (RESP.) STREAMS?

WE ARE IMPRESSED BY THE LACK OF KNOWLEDGE OF THE ACTIVITY OF THE HERBACIDES IN GROUNDWATER. EAST OF THE CASCADES, THE SOIL IS POROUS VOLCANIC PUMICE WHICH ABSORBS MOISTURE MORE QUICKLY THAN THE HALF LIFE OF THE COMPOUNDS WHICH ARE DISCUSSED. THE MAJORITY OF THE MAJOR STREAMS IN THIS COUNTRY ARE SPRING FED, I.E. GROUNDWATER FED. IGNORANCE OF THE EFFECTS OF HERBACIDES IN GROUNDWATER AND MONITORING REGIMES DESIGNED ONLY FOR MUNICIPAL WATERSHEDS COMBINE TO CONVINCE US THAT THIS METHOD OF VEGETATIVE TREATMENT IS NOT SAFE ENOUGH TO BE OF UTILITY IN CENTRAL OREGON NATIONAL FORESTS.

CHOICE OF 2,4-D AS THE CHEMICAL OF CHOICE BY THE USFS IS ALARMING AS WELL DUE TO ITS HIGH WATER SOLUBILITY AND HIGH ACUTE TOXICITY.

TO CONCLUDE OUR DISCUSSION OF OUR REJECTION OF HERBACIDE USE ON THE NATIONAL FORESTS OF REGION VI, WE RETURN TO THE SECOND SENTENCE IN THE STATEMENT QUOTED ABOVE. IT APPEARS IRRELEVANT FROM ANY STANDPOINT OTHER THAN THAT OF BIOACCUMULATION AND BIOCONCENTRATION HOW LONG A TOXIC CONCENTRATION OF CHEMICAL POLLUTION LASTS. A LIVING CREATURE ONLY DIES ONCE.

THE BLANDISHMENT FORETELLING THE REPOPULATION OF A STREAM BY SURVIVORS WHICH FLED THE AREA OR HAD A GREATER TOLERANCE TO THE CHEMICAL (PG. IV-73) IS DIMINISHED BY SEVERAL FACTORS. THIS SUPPOSES A GRADUAL BUILDUP OR EXPOSURE TO A CHEMICAL BUT DOES NOT ADDRESS LETHAL CONCENTRATIONS OF THE COMPOUND ACTING AS A BIOLOGICAL EXTERMINATOR AS WHEN A TRUCK DUMPS ITS LOAD IN A STREAM. IT SUPPOSES MOBILITY IN ALL LIFEFORMS WHICH IS NOT NECESSARILY TRUE. LOSS OF A GENERATION OF SALMONID EGGS IS ENTIRELY POSSIBLE. IT DISREGARDS THE LOSS TO THE GENETIC POOL OF SPECIES WHICH DO NOT ESCAPE AND WHICH ARE INDIGINEOUS AND PECULIAR TO A PARTICULAR AREA OF THE STREAM.

FOR THESE REASONS, WE HAVE A PROBLEM WITH CHEMICAL VEGETATIVE MANAGEMENT UNDER THE GUIDELINES OUTLINED IN THIS

ORCTU/REGION VI VEGETATIVE MANAGEMENT P.3

DEIS AND MUST OPT FOR THE ONLY VIABLE ALTERNATIVE,  
ALTERNATIVE A.

WE ARE PLEASED TO SEE THAT A BUFFER STRIP OF NO MECHANICAL  
VEGETATIVE MANAGEMENT IS PROFFERED FOR ALL RIPARIAN ZONES.

WE WOULD LIKE TO SEE THE FINAL EIS DIRECT INDIVIDUAL FOREST  
SUPERVISORS THROUGH STANDARDS AND GUIDELINES WHICH DEFINE  
COMFORTABLE BUFFER ZONES ACCORDING TO SOIL TYPES, SLOPE AND  
CLIMATOLOGICAL FACTORS.

THE RIPARIAN ZONES WOULD BENEFIT IF OTHER METHODS OF  
VEGETATIVE MANAGEMENT ALSO INCLUDED THE CONCEPT OF BUFFER  
ZONES, STRICTLY DEFINED AND GENEROUS ENOUGH TO ASSURE THE  
PROTECTION OF THE SURFACE WATERS WHICH THEY BORDER.

WHERE THE BIOLOGICAL TOOL OF MANAGEMENT CHOICE IS THE COW,  
WE WOULD LIKE THE BUFFER STRIP AROUND THE RIPARIAN AREA, AN  
AREA OF CRITICAL ENVIRONMENTAL CONCERN, PROTECTED AS WELL AS  
POSSIBLE. THE STANDARDS AND GUIDELINES FOR USE OF THIS TOOL  
SHOULD STIPULATE SEASON OF PASTURE, ALLOWABLE FORAGE,  
PROVISIONS FOR REDUCING TRESPASS AND UNDESIRED RIPARIAN  
DEGRADATION, AND A STRICT MONITORING SCHEDULE FOR RECORDING  
NON-POINT POLLUTION.

WE ARE PLEASED TO NOTE THAT FIRE MANAGEMENT, THE PREFERRED  
METHOD OF VEGETATIVE CONTROL IN ALTERNATIVE A, IS  
CONSTRAINED BY THE BUFFER CONCEPT IN RIPARIAN AREAS. WE ARE  
ALSO PLEASED TO NOTE THE RECOGNITION OF INTERMITTENT STREAMS  
IN MITIGATING FOR CONTROLLED FIRE.

WE REMAIN ASSURED THAT THE CONSTRAINTS ON PRESCRIBED  
BURNING, EVEN WITH THIS ALTERNATIVE WHICH EMPHASIZES THIS  
METHOD OF CONTROL, WILL BE SUFFICIENT TO PRECLUDE THE DANGER  
OF ACID RAIN WITH ITS CONCOMMITANT AFFECT ON THE FISHERY.

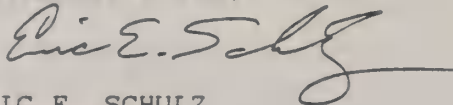
I/B Public Participation  
and Consultation

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JAN 14 1988  
ORCU/REGION VI VEGETATIVE MANAGEMENT P.4

WE WOULD LIKE TO THANK YOU FOR THIS OPPORTUNITY TO COMMENT  
ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT WHICH EXPLORES  
ALTERNATIVES FOR MANAGING COMPETING AND UNWANTED VEGETATION  
IN THE PACIFIC NORTHWEST REGION.

WE HOPE THAT OUR INPUT IS OF SOME SERVICE AND LOOK FORWARD  
TO ELABORATING ANY POSITION WHICH IS VAGUELY EXPRESSED.

SINCERELY YOURS,



ERIC E. SCHULZ  
CHAIRMAN  
OREGON COUNCIL  
TROUT UNLIMITED  
939 NW BOND  
BEND, OR 97701

001415



Kindler Stout  
Feb. 14 '88  
Ashland, ORE

To:

Vegetation Management Team  
U.S.F.S. - Portland

COMMENT ON OCTOBER '87 DEIS  
(CONIFER RELEASE)

I have mostly two kinds of comments:

- matters that are puzzling to me
- matters where I'm outraged

So I will make suggestions and ask questions

- ① an Alternative to Maximize Employment was not offered! The reasoning that economic efficiency would be lost in F.S. program design does not satisfy me because unemployment has a very high dollar and social cost impacting other government programs.
- ② similarly I'm outraged that, in response to a four-year herbicide ban, while health effects were studied, no Alternative solidly takes up the challenge and adjusts other factors to design a realistic program based on health risks.



What I see is three preferred Alternatives that all fail to meet the problems; set off by four other Alternatives that come off as being ~~tailored~~ tailored for dismissal! -- designed to divide and conquer opposing interest groups.

This overall approach does, of course, fit the bill for rational decision-making by including the overwhelming unknowns in each of the preferred Alternatives so that all are equally impossible to evaluate in terms of actual risk levels. Hopefully this can be addressed elsewhere in the planning process. But I don't see how this shortcoming can be addressed under any of the seven Alternatives.

③ Related to this:

S-22: Alternatives E, E, and G(respectively) yield incremental increases in present net value, for additional increments of (health) risk.

And IV-135: ...assumption that health effects correlate with management activity, economic product(ivity) and economic efficiency.

And IV-11: ...risk correlates to number of acres treated, rather than method used.

Shortcoming: This state of affairs results from project [D.E.I.S.] result, or even project design, although it was not stated as such in the document itself. I'm convinced, however, that the correlation of risk to level of management/market value of timber, etc is not necessary.

To correct the shortcoming: I implore the vegetation management policy team to bring environmental protection / extreme health risks / the social problem of unemployment / high taxes / INTO THE FOREFRONT instead of relegating it to mitigation status and continuing "business as usual."

Specifically: I suggest that the final E.I.S. continue the ban on herbicides and set the stage for other serious changes in policy by giving ~~individual~~ the smaller planning units some openings to experiment for maximizing various values at the disgression of the smaller planning units, to address the various (Multiple Use) values and broader societal issues.

④

IV-126: Alternative D restricts efforts to control vegetation to areas where adverse effects of the vegetation are fairly certain.

I would like such language to predicate  
whatever F.E.I.S. "alternative" is "chosen!"

One sort of DATA GAP not spelled out  
in the DEIS. needs to be added,  
concerning "the 45% of commercial  
forest land with vegetation types where  
the need for herbicides are unknown."  
— (Siskiyou Earth First!)



- 21 Newton, Jan. Testimony before U.S. House Agriculture Committee, Subcommittee on Forests, Family Farms, and Energy, field hearings at Eugene, Oregon, on problems and opportunities in forest management practices. January 3, 1980. Testimony reprinted in *NCAP News*, Winter-Spring, 1980, pp. 35-37. See also Final EIS, Siuslaw National Forest, *Ten-Year Timber Resource Plan*, U.S.D.A. FS-R6-FES(Adm)-78-11, February 12, 1979, p. iii. Herbicide proponents acknowledge the connection between the allowable harvest and herbicide use in national forests: "The availability of the use of herbicides is assumed with each alternative" in setting allowable harvest levels. Put briefly, the allowable harvest level of timber is programmed ten years in advance on the assumption that herbicides will be used.

"The Siuslaw National Forest estimates that allowable cut would be reduced *immediately* by 34% . . . if herbicides were banned *in that forest alone*." (October 1980 campaign mailer, Lincoln County Citizens for Common Sense.)

Dr. Newton's research has been published by NCAP and is available in two parts: *An Economic Analysis of Herbicide Use for Intensive Forest Management. Part I: Evaluation of Forestry Related Impacts of 2,4,5-T in Oregon. Part II: Critical Assessment of Arguments and Data Supporting Herbicide Use.* NCAP, P.O. Box 375, Eugene, Oregon 97440.

page 270 note 21 (for page 172)

1983 book A Bitter Fog by Carol Van Strum (S.F., CA)

According to Phil Keisling, "The Spraying of Oregon" in Willamette Week (5 parts) Dec.

1979

DR. JAN NEWTON...FOUND THAT DATA DEMONSTRATING THE  
ADVANTAGES OF HERBICIDE USE WAS VIRTUALLY NONEXISTENT  
... "AN ECONOMIC CASE IS ALMOST ENTIRELY NONEXISTENT."  
AND... "THE REAL...PURPOSE FOR HERBICIDE USE IS TO CLAIM  
HIGHER FUTURE TIMBER YIELDS IN ORDER TO JUSTIFY IN-  
CREASED HARVEST IN THE PRESENT.

— (Lewis Regenstein's book  
America The Poisoned  
1982, Wash. D.C., p 40.)

④ contd.

Specifically: I suggest that the need for 'vegetation management' be studied for each planning unit or system in terms of on sight data regarding success of these programs in the past, and cost/benefit determinations).

# Input sought on forest spraying

Steve Lundgren  
The Tidings

(Jan Engert, a spokeswoman  
for the Forest Service's  
vegetation control program.)

Engert said the ban on herbicides brought doomsday predictions for the forests, but at this time there is very little decrease seedling success rates in areas planted since the ban,

except in southwestern Oregon.

Jim Vopes, a silvaculturist for the Rogue River National Forest, said grass and sedges create a real problem on this forest by competing for moisture and providing cover for pocket gophers who prey on fir seedlings. Vopes believes herbicides are the most effective and economical method of controlling grasses and other ground vegetation in this region.

5)

IV-134: Herbicides, in the EIS have no long-term effect on long-term productivity.

This is puzzling, especially out of context. The context seems to be to persuade the reader that other methods of conifer release will "reduce the natural productivity" in spots. Actually the herbicides are an (integral?) part of overall management objectives, I would presume.

⑥ Although the writer(s) tended to speak especially favorably of herbicide use in some places

, e.g., IV-138: (after "C" and "D",) All of the remaining alternatives have considerably more accidents, with Alternatives A and E having the most (due to increased acreages treated by hand in lieu of herbicides).



And also (S-12) end up with an 'unfavorable' F.S. budget change for Alternative A, in the sense that it would cost taxpayers a million dollars to make that choice; -- looks like a "hidden agenda" bolstering herbicide proliferation.

Specifically I ask for an agenda that minimizes federal subsidy for resource extraction on public land; that embraces caution as a way of mitigating potential health effects; that favors worker security at the cost of corporate objectives; and decreases the number of <sup>public</sup> forestland acres under intensive management (with incentives for timber production on private land more suitable for developing sustained yield practices.)

① I'm told that Alternative E recommends  
that

- 2,4-D
- amitrole
- diuron
- fosamine
- bromacil
- 2,4-dp and
- simazine

all be restricted.

Kinder Stout / Feb 14

I plead for this restriction, as far as it goes, without understanding how several others got on the other list (of nine remaining herbicides), or having much confidence in the process for selection of new herbicides (C-17). Table IV-25 on page IV-107: ~~could~~ "Estimated Level of Confidence that No Adverse Human Health Effects Will Occur: Based Upon Worker Exposure From Routine-Realistic Back pack Spraying" favors Asulam and Picloram, and these even fail to register a high level of confidence.

⑧

D-4 p.13: ...only dermal and dietary routes considered.

D-4 p.7: ...slight possibility of inhaling drift.

D-4 p.14: ...inhalation insignificant....

§ D-4 p.13 none are specific lung toxicants

IV-91: Virtually all of the calculated exposure (to the public from routine aerial spraying) is due to eating the vegetables and drinking the water.

Throughout the document it is assumed (scientifically?) that airborne particles of herbicide preparations or their 'daughter products' travel a maximum

of 1/2 mile. I could find no argument  
for that proposition or assumption;  
while there's evidence, perhaps consistent  
reports of spray drift at much greater  
distance.

At about the same time the Greens were noticing the damage to their trees and crops a month after the spraying, Dr. Elam had become puzzled by the sudden withering and dying of the vetch, grapes, and apple leaves in his own garden. "Could some kind of plague have hit us?" he wondered. He had taken some samples to the county extension agent, who could not explain the cause. The O.S.U. plant clinic, however, immediately diagnosed the problem as phenoxy-spray damage.

"But that spraying was two miles away!" Dr. Elam recalls. "I must say, I couldn't quite believe then that it could have reached us and affected all our plants so strongly."

In June, Dr. Elam began noticing the vine maples turning

red, "bright red—the way they do in autumn." Strange clump of yellow leaves appeared on the big leaf maples near his home. He drove up to the Greens' and noticed the same "blemish on the trees up there.

"The O.S.U. plant clinic could find no pathogen responsible and attributed the death to a 'phytotoxic' agent. I began to explore the area systematically then, to see if there was any sort of pattern in the occurrence of this malady. I found that the yellow patches were present all the way from the upper part of Honey Grove Road down to the highway, and on the hillside across the highway opposite Honey Grove Road. East on the highway they occurred as far as the Stouts' place, and as far west just to the border of Alsea, which is about three quarters of a mile from here.

"Looking at a map, I put together an explanation. When they sprayed there above the Greens', the day ended in a warm night, with an incomplete cloud cover. Now you have to understand what happens when that stuff is sprayed. No matter how accurately they spray, it's impossible to control what happens to it afterward. Evaporation will always occur. Now the herbicide is a heavy molecule. It vaporizes, but in the cool of the evening it settles close to the ground and then proceeds to flow along the ground.

pp. 63/64/65 of book: A Bitter Fog by Carol Van Strum  
(1983, San Francisco)



---

“What evidently happened in this event was that it flowed across the Greens’ place down into the whole Honey Grove valley. Here, at the lower end of the valley, it ran up against the hillside across the highway, then spread laterally along the highway as far east as Stouts’ and west to the edge of Alsea.

“As you can see on the map, or just by looking at the terrain here, this valley served as a kind of sink for the spray. You could certainly smell it here that night after they sprayed. It was fierce. And apparently it was strong enough to damage the vetch and deciduous trees and grapes. Who knows how long it went on draining down here? For as long as it continued to vaporize off the sprayed area, one can assume.

“One thing that really makes me wonder—the deformed lambs and stillbirths in the sheep both at Greens’ and at Stouts’. And Mimi Stout had a dog-breeding operation, and many of their pups were born deformed recently, too. They won’t put

---

*Drifting In The Wind*

65

any blame on the sprays, because they use them themselves. They say they’ve used them for years and years and never had any problem. That’s a common argument of the spray operators, but what they don’t realize is that for most of those years the spraying was done by hand and was applied only locally. There wasn’t the possibility for widespread drift and accumulation that aerial spraying causes. Aerial spraying by helicopter is relatively new, and I don’t think these people realize what a greater potential there is for drift and damage.”

⑧ contd.

Prevailing winds are one factor in spray drift. Another may be thermal movement of air mass. In ~~the latter~~ <sup>the latter</sup> case

it seems that dilution of concentration is not as efficient. As a citizen I will press for government standards that will lead the private sector to safer standards too.

⑨ Perhaps drift is negligible with hand-application treatment (D-5 p.16) (D-1 p.6) but we must not wait for EPA validation of effects reported from community after community in Cal., Or, WA, Id, Mt, and indeed through several continents! Perhaps an additional risk model would clarify this so folks won't think you are insensitive to claims that spray drift from aerial application travels at least four times as far as you And seems to "fly in the face of" <sup>the precautions taken by the</sup> <sup>the treatment operations make any dose at all to the public unlikely</sup> <sup>not observed effects.</sup>

note:

IV-95: When study numbers are too low—consistency  
of findings lend some credibility.

§ H-9 Our approach: to compare the findings  
with respect to consistency among the reports  
and . . .

10

• Kindler Stout / Feb 4

⑧ contd.

The non-scientific literature frequently cites instances of repeated exposure; whereas the DEIS assured the reader that the possibility ~~of peroxide~~ is so low as to be negligible. eg. IV-92

Further, there are reports of government spray planes or helicopters spraying protesters — whereas the document assures the reader that no one would ever be directly sprayed.

⑨ And I've got to speak up for the non-human inhabitants of the forest!  
(Bobcat?) said "

WHO KNOWS ABOUT DEER BABIES BORN  
WITHOUT BRAINS, ABOUT MOUNTAIN  
LION MISCARRIAGES, OR WHAT KIND  
OF SEEDS WILL COME FROM DOUG-FIR  
TREES EXPOSED TO MUTAGENS?

II-39: ...there will not be a significant variation among alternatives in effects on riparian vegetation.

Was this a hidden agenda?  
I'm concerned for the Port Orford Cedar and  
lots of other threatened species.

Curiously, it is argued that Alternative  
C -- the least management -- is worst  
for animals. (Forest fires in fifth decade?)



11

Kindler Stout / Feb 14

Again it appears that amends toward our forest friends was not on the agenda, where it belongs!

- (10) There are frequent remarks that the health risk correlates with the number of acres treated, rather than to what tool is used; that the actual choice of vegetation management alternative makes little difference to (human safety); that the question of the Alternatives has a minor (and subordinate) role in the economic questions. BUT THE SUMMARY AVOIDS THIS THEME, as if there were a design to persuade the casual reader away from otherwise desirable objectives — like a starting place for a reevaluation of the role of herbicides in forestry.

(note: on II-33 paragraph 4 the fourth word (such) doesn't refer clearly to preceeding paragraph and may make a claim contrary to claim on II-32.)

12

Kindler Stout/Feb 14

(11) I am very uncomfortable with the oft-repeated rationale that an overly-pessimistic numerical value for ~~one potential hazard~~ one potential hazard will 'cover for' relegating another factor or hazard to the status of insignificant -- e.g. denying that possible <sup>(D-5 p30)</sup> synergetic effects would need a number or that possible effects of 'inert' ingredients need separate consideration. (see also D-13 p28)

(12) I'm alarmed that it can be conceived that forest(fire/slash)fire (with dioxins, formaldehyde, etc - IV-120, 121), with its greater drift tendencies, might be as hazardous as herbicides proposed; but I'm also alarmed that the planners, I mean the writers, did not have on their agenda the minimizing of either danger!

---

) D - 5 p.31: ...none of the 16 herbicides accumulates  
in human tissues.

I don't think this claim will bear future scrutiny!

13

Kindler Stout / Feb. 14

(14) My notes don't serve me well to introduce the following question: Some herbicides are accompanied by some varieties of dioxin. Where in the D.E.I.S. are such factors spelled out?

(15) Perhaps the matter I find most pressing in the presentation is the awkward (-misleading-) values attributed to health effects — major, minor, disabling, chronic, fatal, teratogenic, mutagenic, etc. It is puzzling to be given numerical values and then told (not to add the numbers to the "injury" numbers for a total!)

IV-94 or D-5 p2

---



Why? because for either set of numbers to be a basis for clear choice, we would need to know whether ~~an~~ ~~increase~~, for instance, a higher figure on the injury side ~~is~~ might be offset by a lower figure on the (cancer) side, etc. The agenda was clearly set by the Congress to enable the reader to make an informed choice; and the only way figured out to do this is

14

Kindler Stant / Feb. 14

to "prefer" three alternatives that all have the same advantages or shortcomings. Yet still, it comes down to wondering how to weigh a sprained ankle against a deformed baby; a crushed spine against a stomach cancer, etc, etc. etc. The presentation sort-of invites the reader to look elsewhere for a deciding factor. Is this the best we can do?

---

I find myself rather opposed to the whole DEIS process with all this and I want to HELP! Please offer some suggestion as to where I could go from here without detracting from the process; because I cannot come up with another process that will satisfy all parties.

---

16) Finally, to put my remarks in perspective, I am utterly convinced that federal investments (if any) and taxation leverage should be spent ~~directly~~ to encourage good management of the timber resource on private/company land!! If that is somehow outside

15

Kindler Stout / Feb. 14

The scope of the whole U.S.F.S. planning process than the process needs to expand to include it. Most of the best forest land in Oregon is in private hands and scarcely "managed" at all! Meanwhile the public resource is liquidated — including sites which are poor growing sites, compared to what should be available for society's investment of management skills and determination

Thanks; respectfully,  
Kindler Stout  
130 Orange  
Ashland, OR 97520  
482-2797

000908

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, Or. 97208

January 13, 1988

Response to: DEIS Managing Competing and Unwanted Vegetation.

The DEIS for Managing Competing and Unwanted Vegetation in the Pacific Northwest Region is awesome and overwhelming to say the least.

I believe that it is obvious that the question in the public's mind is not managing competing and unwanted vegetation, but managing questionable and unwanted herbicides.

It is stated in Appendix H; "Various sides embrace very different scientific judgement and policy choices on both risk assessment and risk management levels.

"Part of the problem is that there is a great deal of uncertainty in the data on health effects of herbicides. This uncertainty has to be bridged with human judgement." (H-1).

Which side of the scientific community is going to be allowed to make this human judgement? Will either or both sides be able to live with and abide by that judgement?

Why? Why do so many of the public distrust the scientific community? Could it be because of the 'unloaded-gun-syndrome' used by that community?

"When testing a substance for toxicity, it is usual to start with the hypothesis that assumes no effect." (H-2). The UNLOADED gun. How many people have died because of this false assumption?

"Statistical methods allow for a certain number of false conclusions." (H-2). These are the conclusions that the public live and die by.

"Hyper-sensitive individuals are not accounted for in statistical tests which are based upon normal population distributions." (H-6). NORMAL population distributions?? Considering the millions of dollars worth of antihistamines sold over the counter and by prescription each year, is it not possible that the hyper-sensitive individuals are the normal population?

"A completely acceptable method of estimating relative or absolute potency values relevant to humans has not become available..."

"Unfortunately many of the chemicals being reviewed by the Forest Service have not been sufficiently tested." (H-6).

Is there any question why the U.S. District Court issued an injunction, in 1984, banning the use of herbicides? When will the Forest Service and the scientific community promoting herbicides guarantee the public a safe environment?

"For Herbicides to reach surface or groundwater it must be relatively soluble in water; resistant to absorption by soil and organic matter; and sufficiently persistent to endure until it enters the water (Newton and Norgren 1977)." (IV-43).



DEIS, Managing Competing and Unwanted Vegetation  
Vaughn  
page 2

I suggest that Newton and Norgren get out of the Lab during a rain storm and observe the real world. Their premise may be somewhat valid for a herbicide to reach groundwater, but that premise does not 'hold-water' as far as surface water is concerned.

The numbers for Change of Jobs under Alternatives C and E are quite confusing. Alternative C, Figure S-3, shows a loss of 21,700 jobs; Figure S-4 shows a loss of 21,800 jobs; while Table II-4 shows a loss of only 21,000 jobs. This would make the average annual income for each of those jobs vary from \$24,450 to \$25,380. For Alternative E, Figure S-3 shows a loss of 1,300 jobs; while Figure S-4 shows a loss of 1,400 jobs. The average annual income for those jobs would vary from \$23,571 to \$25,385. Explain please.

The numbers shown as totals in Tables B-5 and B-6 are approximate averages rather than totals. These are the Tables in Appendix B and are not to be confused with other "B" Tables, such as those in Appendix D.

It is confusing when at least three different reference periods are used for Alternative B. This is especially true of Figure S-3, which shows current, Alternative B and/or other. Tables II-4 and II-5 states: "The reference (Alternative B) is the expected situation with implementation of the Forest plans currently being developed." While in Table II-6 it is stated: "The reference (Alternative B) is the expected situation, first decade of implementation of the Forest plans currently being developed." Do the changes from Alternative B in Figure S-3 use the reference time frame as shown in Table II-5, Table II-6 or some other?

All activities and issues for all Alternatives should be referenced to the same starting time frame, not to the one that makes the Forest Service decisions look the most favorable. For instance, in Figure S-3, if Alternative B was used as the reference for Emissions from Prescribed Fires, the information would change to:

	A	B	C	D	E	F	G
West-side	3% less	Ref.	no	30%less	13%less	30%less	2%less
East-side	2% more		burning	25%less	2% less	18%less	4%more

These figures don't look so impressive, do they? Yet, the results are the same.

Under environmental effects (long-term productivity) Figure S-4, for Alternative C it is stated: "Substantial loss; fire increases above current and natural levels, results in soil damage." Fires may increase above the current level but they do not increase above the natural level. The natural level is based on man's actions or activities nor affecting the environment.

The DEIS states: "High intensity wildfires COULD result in damage to soils..." This might happen in the fifth decade after implementation of an alternative. Wildfires also provide benefits to the soils and the environment.

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DEIS, Managing Competing and Unwanted Vegetation  
Vaughn  
page 3

The terms prescribed fires and prescribed burning becomes confusing as the DEIS does not distinguish between the two. Prescribed Burning is defined as: "Intentional application of fire to forest or rangeland in their natural or modified state to meet specific management objectives." It is assumed that unless it is specifically excluded, slash burning is included in all Figures, Tables, charts and acerages concerning emissions or areas treated. Figures S-3 and Table II-11 do not make this exclusion.

Also Table II-11 is somewhat meaningless as it does not include geographical areas of concentration nor does it give a volume to weight ratios. The average weight of suspended particles, computed from this Table, is 6.13 ounces per square mile in the states of Oregon and Washington.

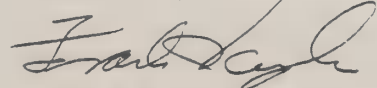
I do not believe that suspended particles from all sources of wood burning, excluding those that have been chemically treated, have as much as one percent of a detrimental effect on our health as all sources of toxic chemicals to which we are unknowingly exposed.

I am disappointed that there are those in the Forest Service that are still trying to foist the metric system of measurement onto the American public. However I suppose that it is more impressive to state, released pines increased in heights by 222 centimeters, than to say 87.4 inches or 7.28 feet. Or that a tree looks larger if it increases 13.5 millimeters in diameter, than if it only increases  $\frac{1}{2}$  inch.

George Orwell knew of what he was writing, only his timing was off just a bit.

I believe that I can live with and I urge the Forest Service to select Alternative E.

Sincerely,



Frank Vaughn  
936 N 7th  
Lakeview, Or. 97630



February 12, 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service  
Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

Thank you for the opportunity to comment on the Region 6 "Managing Competing and Unwanted Vegetation" DEIS. We have reviewed the document and wish to compliment you and your team on the scope of the project you have undertaken, as well as on your efforts to involve all interested parties. We are aware of the large volume of technical comments you are receiving and wish instead to focus our comments on major, unresolved issues.

Concerns of private forest landowners. WFPA represents the owners of five million acres of Washington State forest lands, some of which are adjacent to or intermingled with national forest lands. Our members are increasingly aware of the relationship between their interests and national forest management. They are dedicated to appropriate, site specific use of all proved management options, including herbicides and prescribed fire. Such an approach to vegetation management is a vital component of successful forest management. The federal vegetation management plan should take into consideration effects on private ownerships. For example, consequences such as increased wildfire risk and noxious weed spread are of concern to our members and should be addressed more fully in the final management plan (see DEIS PP II - 76,77).

The Alternatives. The presentation of three preferred alternatives presents an analysis problem for the document's reader. What is the intent of the Forest Service? Will the region select all three or will it select one? The DEIS is written to look as though Alternative D would be a reasonable "compromise." We cannot accept that. We also question whether the identification of three preferred alternatives complies with NEPA requirements, since the public is not able to identify, evaluate and respond to the region's decision making process.

The "no-action" alternative, Alternative C, is not adequately presented. NEPA intends a no-action alternative to provide a comparison of existing management with the contemplated action. Alternative C neither reflects current vegetation management practices under the injunction nor management practices prior to the injunction, and thus does not fulfill the requirements of a no-action alternative. Alternative B addresses an "approximation" of the draft forest plans, which have not been adopted, and, as such, cannot be considered a no-action alternative.



Gary Larsen, USDA Forest Service  
February 12, 1988

Page 2.

The array of alternatives presented in the DEIS does not adequately provide for an integrated vegetation management program. As forest landowners, our members find the best vegetation management results are achieved through site specific prescription drawn from a full range of management options. We recognize each control method, whether chemical or mechanical, carries its own risks, economic impacts and efficacy. Yet each option holds an important place in the manager's "tool kit." Emphasis must be placed on risk management (which the DEIS does not do), rather than arbitrarily restricting the use of various options to reduce perceived risks (which the DEIS does do). None of the alternatives are rejected on the basis that the Forest Service would be unable to effectively manage the risks of herbicides and fire. Mitigation measures are regularly and successfully used by industry in the use of both herbicides and fire, but they have not been adequately addressed in the DEIS.

Relationship to Forest Plans. One major purpose of an effective vegetation management plan is to enhance timber outputs as outlined in individual forest plans. We see no tie between the DEIS and the draft Region 6 forest plans. We note that DEIS management assumptions differ from the combined preferred alternatives of the draft forest plans. For example, DEIS Alternative B which allows the most management options, proposes an Allowable Sale Quantity of between 3.8 and 4.3 billion board feet, yet the combined draft forest plans totals (which assume full herbicide and fire options) total 4.7 billion board feet. Clearly, individual forest plan goals and vegetation management alternative impacts need to be considered in concert with each other. It is impossible to estimate the effects of individual alternatives on any one national forest.

Some questions for you: If vegetation management impacts were quantified, how would they be disaggregated and incorporated into the forest plans? Would such an action require supplemental EIS's or further delays of final forest plans? How would you display this data in the Final Vegetation Management EIS?

Cumulative Effects on State and Local Economies. It is imperative the Forest Service and others review and analyze the combined effects of the proposed vegetation management program and draft forest plans. We see reduced harvest levels in the proposed forest plans. We see further reductions of productivity through herbicide and prescribed fire restrictions. The public needs to know fiscal impacts on counties which receive timber sale receipts, on local communities dependent on national forest timber and on the state economy in general. Because of timber market complexity, the combined regional effects of Forest Service proposals on timber supply should also be examined. These analyses are critical, but you have not given us the information to do them.

Conclusions. This DEIS needs additional work in providing a better array of alternatives which incorporate risk management and mitigation measures into their evaluation.

The relationship between the vegetation management study and the draft forest plans must be clarified and evaluated. The combined effects of this study and the draft forest plans on state and local economies and on timber supplies must be described and evaluated.

I/B Public Participation  
and Consultation

Gary Larsen, USDA Forest Service  
February 12, 1988

Page 3.

Until and unless these items are completed, this study is incomplete and open to challenge. Time consuming though it may be, we see it as a necessary step in the adoption and implementation of a successful and defensible vegetation management program.

Thank you again for the opportunity to comment. Please contact me should you have any questions about our comments or if I can be of further service.

Sincerely,



Stewart Bledsoe  
Executive Director

SB:CC:sh

cc: WFPA Trustees and Forest Management Committee



001315



Washington  
Friends of  
Farms and  
Forests

206-754-1622

P.O. Box 7644, Olympia WA, 98507-7644

February 22, 1988

Mr. Gary Larsen  
USDA-Forest Service  
P.O. Box 3623  
Portland, OR 97208

Dear Gary:

On February 13, you were inadvertently mailed a draft of  
our responses to the DEIS.

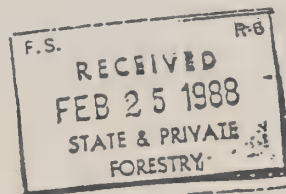
I have enclosed what is intended to be our final response.  
Please destroy that previous copy and replace it with this  
document.

Thank you.

Sincerely,

Duncan Wurm  
Executive Director

Enclosure



001315



Washington  
Friends of  
Farms and  
Forests

206-754-1622

P.O. Box 7644, Olympia WA, 98507-7644

February 13, 1988

Mr. Jim Torrence c/o Gary Larsen  
Vegetation Management Team  
Pacific Northwest Region  
USDA Forest Service  
P.O. Box 3623  
Portland, OR. 97208

Dear Gary;

Attached are the Washington Friends of Farms and Forests comments on the Draft Environmental Impact Statement for "Managing Competing and Unwanted Vegetation." We hope this is of assistance to you and your team in resolving this issue.

If there is a need to clarify any of our points or if we can assist you in the future let us know, we have an interest in seeing this thing through. We thank you for spending time with us to discuss our concerns. The intent is not create more work for you and your team, but to insure you have a document that will withstand procedural challenges.

As is evident we did not feel we had the time to do the technical review we would have like to of done. However, we are sure there have been many with much greater resources to tackle those questions.

Sincerely;

A handwritten signature in dark ink, appearing to read "Duncan C. Wurm". The signature is fluid and cursive, with a long horizontal stroke at the end.

Duncan C. Wurm  
Executive Director

enclosures

cc Friends Board  
Confidential List  
Governor Boothe Gardener  
Rep. Sid Morrison  
Rep. Thomas S. Foley



Washington  
Friends of  
Farms and  
Forests

206-754-1622

P.O. Box 7644, Olympia WA, 98507-7644

February 16, 1988

Mr. Jim Torrence c/o Gary Larsen  
Vegetation Management Team  
Pacific Northwest Region  
USDA Forest Service  
P.O. Box 3623  
Portland, OR. 97208

Dear Gary;

The Washington Friends of Farms and Forests final comments on the Draft Environmental Impact Statement for "Managing Competing and Unwanted Vegetation in Region VI" are enclosed. We hope this information is of assistance to you and your team in resolving this important issue.

If we can help by clarifying our comments, preparing information for the FEIS, or providing data for the needed supplement, please feel free to call. We are interested in seeing this process completed and the document finalized. Our intent was not to create more work for you and your team, but to insure your final decision will withstand procedural challenges.

Sincerely;

Duncan C. Wurm  
Executive Director

enclosures

cc: Friends Board  
Confidential List  
Governor Booth Gardner  
Rep. Sid Morrison  
Rep. Thomas S. Foley

# I/B Public Participation and Consultation

We appreciate the opportunity to comment on the Draft Environmental Impact Statement (DEIS) for Managing Competing and Unwanted Vegetation. We wish to compliment your interdisciplinary team for the effort, time and professionalism they have shown in the preparation of this document. In our telephone conversations and visits to your office they have been without fail responsive to our questions and concerns.

The following comments reflect the view of the Washington Friends of Farms and Forests. We represent many of the agricultural, forestry and rights of way managers in the State of Washington and have felt the need to be involved in this process. Included in our organization are many individuals who need to control vegetation for the protection of crops, may they be Christmas trees, food, small woodlots or livestock. We are hopeful that Region IV will maintain the ability to use all tools when this process is complete. This is our attempt to help you in that effort. We are concerned for your efforts will be closely linked to our ability to continue to use crop protection chemicals when needed, and many of our members are reliant on the USFS for their basic production resources.

Unfortunately, we cannot support any of the current alternatives as presented in the DEIS. The concepts of loosing important tools such as 2,4-D and aerial application are not supported in your document, but appear to be compromises you are willing to make. These tools are critical to effective, economic and environmentally sound

management on private lands. Included in this is the concept of last option for herbicide use. It is not defined and we are afraid the literal interpretation of this by the courts would be substantially different than the internal USFS definition. It must be removed and better language substituted that leaves little room for misunderstanding.

The long-term economic impacts of this document for private industry cannot be ignored as the financial community has made it clear; future investments in agricultural and forestry related industries will be closely associated with future supplies of basic resources.

We strongly support the supplementing of this document or redrafting to insure the following deficiencies are corrected. It is our belief that is in the best interest of everybody concerned or impacted by this decision that this option be given serious consideration.

After reviewing the Draft document for Managing Unwanted Vegetation for Region VI there are many areas of concern that the "Friends" program have regarding its content. There also appears to be some major flaws from a legal and public involvement standpoint that should require major redrafting or supplement to the current document as we have previously suggested. Our comments on the technical content will be restricted to areas where technical flaws are misleading, poor assumptions occur and incomplete information is utilized. We are not offering to do the job for the USFS, as they have had since the Court injunction in 1984 to research available information, data and published literature.



The Washington Friends of Farms and Forests had requested a 120 day extension of the review or public comment period. (See letter to Jim Torrence dated, November 24, 1988). We were granted 30 days which was substantially inadequate for the industry to respond in much detail. We believe the reluctance to grant the additional time was based on a predetermined timetable by the USFS so that this issue could be resolved prior to finalization of individual forest plans.

1. Overview

There is a general tenure to this document which appears to be supported by assumptions that are not based on factual public opinion research or just poor scoping. The USDA-Forest Service has assumed that there is a significant portion of the population who perceive a health risk, from the use of crop protection chemicals to control unwanted vegetation. We would urge the Forest Service to do some public opinion research in the rural communities which would be most affected by their land management activities. We do not believe there is adequate information to use this assumption for the basis of determining alternatives alone, and is a weakness not recognized during the scoping phase.

It is obvious when reading this document that allot of assistance in preparing alternatives was given by the environmental activist community, whereas, information that was submitted during the scoping process from other users of the National Forest were not utilized in this draft. The assumption of perceived risk is

confusing to the public and does nothing to educate them about the real risks associated with the use of crop protection chemicals. With the language in this draft you have legitimized a small minority of the public whose perception of these risks is not supported by scientific evidence. A real opportunity to deal with some common sense, scientific evidence and evaluation of past environmental impacts from the use of herbicides has not been utilized in preparing this draft.

We recommend that an attempt be made to review past herbicide projects and evaluation of the health and environmental impacts be analyzed and documented in FEIS. Why is there no mention of the past record of no significant environmental or public health affects from several decades of the use of these compounds.

In the Draft document allot of language is used that is biased in nature and has the tendency to create more questions in the public eye. As an Example, "Public participation in vegetation management is an especially important and sensitive issue because of the past conflict charged relations."

How is the general public suppose to interpret this comment, is the Forest Service now saying it has been guilty of conflict of interests with private industry? What purpose does this statement serve in your draft without further clarification? Can you substantiate this comment with facts or are you saying this to appease critics of past Forest Service activities? How would you

respond to the conflict of interest that some are now charging the USFS has with the environmental community and their reliance on that community in preparing this document? We would recommend that you remove this statement from your final document. (pg 1-8)

You have introduced what (appears) to be a new silvicultural concept in this document that once again is not clarified or explained in detail. "Specifically, the Forests' use of a prevention strategy to control unwanted and competing vegetation may result in a reduction - ranging from 30 to 60 percent Regionally - of acreage historically treated with a corrective action in the last five years (1981 - 1985)". (pg 11-13). It has been understood long before this period by Forest Service Silviculturalist that the IPM process included prediction of vegetational succession on a site by site basis. Specific silvicultural prescriptions have been taking into account ways to reduce the need for excessive reforestation and TSI activities after final harvest, in essence to prevent the need for future treatments. This process is extremely technical and requires many years of specialized training and experience.

It appears once again you have based an alternative "D" on a false assumption, which I am sure your silviculturist do not agree with, that most herbicide treatments in this five year period were corrective measures and not designed as a part of an IPM program. We would like to know the basis for that assumption and see documentation from the individual forests if that is really the case! Do not Timber Sale EA's include many specialists input and

current FS manual directions dictate an IPM approach to all pest problems, including vegetation? Our recommendation is that the FEIS recognize the current forest programs with emphasis on IPM and show that is what the "no change alternative is." It is very unclear as to what the current program is and how it is reflected in the range of alternatives and this document as a whole.

The DEIS for treating unwanted vegetation departs from historical patterns in the public involvement process with the selection of three preferred alternatives. This has been extremely misleading to the public and has confused the issues. It is anticipated that the final selection by the USFS will consist of a merging of points from each alternative which opens up the legal question of whether or not there was adequate public review. On page IV-6 you state, "The purpose of the environmental analyses contained in this DEIS is to present the environmental impacts of the proposal and the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decisions and the public." (40CFR 1502.14) We recommend you supplement this document or redraft it with one preferred alternative. It can be and probably will be, legally argued whether or not you have sharply defined the issues or provided a clear basis for choice!

2. Legal

The National Forest Management Act requires the Forest Service to use forest planning to "insure consideration of the economic and environmental aspects of various systems of renewable resource management, including the related system of silviculture." 16USC 1604(g)(3)(A)

The methods for control of competing and unwanted vegetation are a key part of the management and silvicultural system for the production of forest resources. Therefore, decisions about methods to control competing vegetation must be made in the context of the forest planning process. In the DEIS the statement, "Decisions based on this EIS could effect the forest plans. The vegetation management program ultimately selected by the Regional Forester could well be different from that currently assumed in forest planning." Here you have dramatically compounded the issue for the local timber industry as no values are given as to possible impacts on individual forest plans. The assumption you will evaluate these impacts with no opportunity to comment on those impacts prior to the selection of the FEIS, leaves this document on a questionable legal footing. You have recognized this issue on pg. IV-57 with the following comment. "The vegetation management alternative eventually selected for implementation after completion of the final environmental impact statement (FEIS) may have implications for allowable sale quantities or long-term sustained yield. These implications will be considered on a forest by forest basis after the preferred alternative is selected."



We recommend that you review 36 CFR 219.1(12) as the Washington Friends of Farms and Forests insists this document must be redrafted or supplemented, so the vegetation management decisions will be made within the scope of the National Forest Management Act and will fully comply with that act.

There is another issue which is not addressed in regards to the National Forest Management Act in this document. That issue is the question of timely reforestation after harvest of timber stands. There is a legal question which has not been resolved as it is clearly evident, that the USFS is not meeting the time frames for reforestation, on many of its lands within the context of NFMA, or Washington & Oregon Forest Practices laws. In this document Alternative "D" states, "Under Alternative "D", however, an estimated 26 percent of these prescriptions would be deferred or no actions decisions. This means that roughly 15,000 acres per year will be left untreated." The current backlog of acres on forests such as the Siskiyou are in violation of state and federal laws, which the USFS is required to meet by Executive Order. This alternative would propose to continue this practice after the court injunction is lifted. Where is the legal basis for assuming this authority? An example of the misguided direction is in the description of Alternative "C" where it is stated, "Only that vegetation management necessary to meet legal obligations in the area of human health or safety will occur under this alternative." (pg.11-43)

We would recommend that the FEIS reflect the need for timely reforestation to meet all State and Federal laws. If the continuation of backlog acres or the increase to the backlog is the product of any alternatives those acres must be displayed and the impacts identified in the FEIS.

The DEIS does not consider how the proposed alternatives achieve the Resource Planning Act goals. The National Forest Management Act requires that guidelines for management plans should be developed to "achieve the goals of the RPA program." 16USC 1604 (G)(3)(D). The Draft does not describe how each alternative will meet or not meet the RPA goals for Region IV. The RPA goal for Region IV timber resources is 5.45 billion board feet and the assumption is the Draft Forest Plans will reduce this figure on a regional basis to an estimated 3.8 to 4.3 billion board feet. In essence without a final decision on each forest plan, an evaluation of the impacts on individual national forests of this DEIS is untimely and impractical. You have assumed that these decisions can be made separate of one another!

We would recommend that the FEIS include the data on the impacts of Region VI RPA goals when they are finalized in individual forest plans.

The DEIS for Managing Unwanted Vegetation assumes that forest plan decisions have already been made contrary to CEQ guidelines that state, "Environmental impact statements shall serve as the means of

assessing the environmental impact of proposed agency actions, rather than justifying decisions already made." 40CFR 1502.2 (G)

The use of figures for ASQ that have not been finalized as a basis for comparing the impacts of the DEIS alternatives has questionable legal validity. It also leads one to doubt the entire economic evaluation in the DEIS.

We recommend that Alternative "B" be redrafted or supplemented to reflect the current Forest Service program and that all references to ASQ not yet finalized be removed from the FEIS. This document makes it clear that Alternative "B" is the reference point and "approximates the direction proposed in forest plans."

The range of alternatives is inadequate because the DEIS contains only one alternative that increases jobs, county income and timber production. Having only one alternative that shows positive social and economic effects invalidates this DEIS as being weighted toward one side of the alternative development spectrum. This has been determined by the 9th Circuit Court to be grounds for an inadequate analysis in California vs Block.

### 3. Methodology

This document makes basic assumptions that are not supported by current scientific evidence on the efficacy of alternatives, to herbicide treatment methods. Of particular concern is the heavy reliance of biological control in Alternative "D". The impacts of

this size of grazing program and its feasibility have not been adequately addressed. The information that has been provided to you by the Oregon Department of Agriculture should be considered in your supplement. It is a much better summation of what biological control is, its limitations, environmental concerns and impacts. (see enclosed copy) As an example you state on page 11-88 that "experience has shown that willing cooperators are not plentiful."

In your section on adverse impacts you have not addressed the major concerns for increased grazing programs. There are known impacts on wildlife habitat, water quality, streamer erosion, soil compaction and human health with the introduction of disease, pathogens and bacteria by livestock to the environment. As most Forest Service land is open range and anyone knows who spends time in grazing allotments your current mitigation measures are not enforced. There is a developing concern about the increase of livestock numbers on the national forest system as water quality control boards develop standards for not point pollution. Current range management budgets do not allow proper management at today's levels. How do you reconcile this with the idea that intensively managing rangeland vegetation can be reduced while relying more on livestock to control unwanted vegetation. In Alternatives "E", "A", or "D" you increase forage acres and dramatically increase AUM's. On page IV-19 table IV-5 shows an increase of four fold, for Alternative "D", of acres to be treated with livestock.

We recommend that the FEIS include the adverse impacts of increased AUM's and that the realistic problems associated with relying on

livestock to control vegetation be identified. There is allot of missing literature that has not been included in your bibliography, that identifies the problems associated with this type of program. We suggest a more thorough research of literature is needed to bring up-to-date this portion of your document. We do not agree with the conclusion on page IV-43 under biological methods that, "That biological methods of vegetation management, as implemented under any alternative is not expected to result in adverse effects on water quality." Consider Giardia, which is transported by livestock.

Alternative methods to herbicides are not adequately evaluated in terms of safety and human health risks. This document is deficient and biased in its display of risks. You acknowledge that manual treatments will need to be performed more frequently and it is recognized there is a greater history of accidents associated with these methods. However, they are not evaluated in terms of increased labor forces needed to meet land management objectives or additional man hours with the increased exposure to chain saw emissions, accidents, etc.

The long history of hand release treatments, four years under the current injunction, has identified many species, sites and conditions that don't lend themselves to being treated by manual/mechanical methods. Significant competitive species have not been included in this document that will effect regeneration, growth and yields. Grass is a major site competitor on both Eastside and



Westside forests. There is no adequate treatment method on most sites other than herbicides for these species, however, hand scalping in all research literature has been shown to be ineffective in reducing competitiveness of grass species. There is no or very little discussion of the efficacy of manual, biological and mechanical treatments on grass species. Other major species that need to be included which will influence the effectiveness of range, rights of way and silvicultural objectives include; Big leaf maple, Ceonothus spp., Chinquapin, Lupine and other hardwoods.

On specific sites over large acreages throughout Region VI the above species will determine site specific treatment methods. It is our recommendation that the FEIS include the range and impact of these species and plant aggregation types. The identification of a reduction of the use of herbicides by alternatives should include a discussion on the ability to manage these species on sites where timber production is the management objective.

On page IV-54 under Alternative "D" you make the following statement, "The forests indicate that knowledge gained through an increased emphasis on research and monitoring will tend to make vegetation management more effective and efficient in the long-term. Management emphasis under this alternative would probably encourage more creativity in the development of problem prevention schemes for site specific situations." Under current budget restrictions and with the injunction on herbicide use currently in Region VI, we

argue this is being done under what should be part of your Alternative "B". If not, you have recognized a basic flaw in your document, none of the proposed alternatives reflect, "current practices." This inhibits the ability to evaluate the proposed impacts on current programs.

Alternative "B" is a reflection of future practices as proposed under the Draft forest plans. We recommend this document be supplemented to add an alternative, as the base of comparison, of preinjunction activities, outputs etc. This should also include the period under the injunction, in essence the past 7-8 years of activities in Region VI.

We, as well as many others who have reviewed this draft, have a very difficult time in correlating, reconstructing or verifying the economic analysis. It is deficient in the aspect of evaluating growth losses from no treatment, increases in growth from effective treatments and future removals of sites that have no other option but herbicides. It is inappropriate to ask the public to comment on this portion of the document without supplying much needed supporting data. As an example there needs to be an expansion of the basis for your alternative to herbicide treatments project costs. Even though you recognize two or three hand treatments will be needed to accomplish objectives on certain sites, there is no recognition that the effectiveness and returns in growth may not be equal. It is our contention current experience under the court injunction has showed a dramatic difference in sites where hand release has been

repeatedly applied and those treated effectively with herbicides. In certain plant aggregation types, from an economic efficiency standpoint, these may have major long term differences in dollar returns. More and more Forest Service silviculturalists are becoming increasingly aware of plant successional patterns, seed storage, sprouting regimes and other site specific problems that preempt the use of alternative methods.

It is our recommendation this economic section be supplemented with historical treatment efficacy data, and costs that have incurred during the injunction. They represent patterns that may not be real in the long-term but are the best available. Many sites have had treatment delayed and may never have been prescribed for harvest if herbicides were not available. It is foreseen this would have a major effect on the definition of capable, available and suitable lands for intensive timber production. Many forests undertook vegetation management programs, that relied heavily on hand release, during the court injunction to maintain program funding levels, and to avoid major shifts in personnel. We would anticipate these shifts to occur under labor intensive alternatives such as "D".

We submit that portions of the DEIS impacts on growth and yield as stated in appendix A-34, A-35, A-36, A-37 are substantially incorrect. The potential long-term yield reductions will be much greater and more costly than indicated, especially on A-35. Regionwide the DEIS suggests that effective long-term yield is a 2-3 percent fall down, which needs to be explained in some detail as it

is different than what other experience and research has indicated. With the combination of Region V showing a 17 percent reduction and the Bureau of Land Management in Oregon anticipating 10 percent we cannot agree with these extremely conservative estimates. The most serious omission of this analysis is the stated reduction in yield with no consideration for value!

The WCA analysis is in need of peer review as a lot of information is missing from your literature cited and should influence the conclusions drawn. Of particular concern is the section on 2,4-D. I have enclosed a very recent, October 25, 1987, paper on the Kansas Farm Worker Study. This paper is entitled, Some Comments On The Kansas Farm Worker Epidemiological Study, and has been published by, Wendall R. Mullison.

The Environmental Protection Agency has just changed the classification of this chemical, February, 1988. It is now classified as category "D" after review by the EPA scientific review panel. Your risk analysis will need to be changed to reflect this current information and should dramatically change the conclusions in your FEIS. We recommend that a thorough peer review of this WCA be published and included prior to the closing of the public review and final decision. We are aware that the 2,4-D task force has helped in providing you with more information and expect it will be included in your final document.

In conclusion the Washington Friends of Farms and Forests can't support the current DEIS without a major supplement. It is felt that there are many more technical concerns within the current document, however, we have limited ourselves to commenting on the major assumptions, legal flaws and methodology.

\* \* \* \* \*



001307



## Washington Wilderness Coalition

P.O. Box 45187, Seattle, WA 98145-0187 (206) 633-1992

16 February 1988

Gary Larsen  
Pacific Northwest Region  
USDA—Forest Service  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

RE: Vegetation Management

The Washington Wilderness Coalition would like to thank the Forest Service for this opportunity to comment on its Draft Environmental Impact Statement for vegetation management in Region 6. Of the Forest Service's preferred alternatives, the Washington Wilderness Coalition (WWC) feels that Alternative D is the best alternative because it would reduce or eliminate the need to spray herbicides or burn vegetation. WWC further urges the Forest Service to strengthen Alternative D by eliminating the use of all herbicides.

WWC is a state-wide organization concerned with the protection, preservation, and ecologically sound management of public lands, wilderness, wildlife, water, and recreation in the State of Washington. At present, our 1,000 individual members and 35 member organizations represent over 20,000 citizens who support wise stewardship of our National Forests.

The WWC submits the following comments on the Draft EIS on vegetation management:

1) The most outstanding problem is the title of this program. We feel it is inappropriate to label the vegetation in question as "competing and unwanted" without adequate data on its impact on merchantable timber. We suggest that the title be changed to "Managing Associated Vegetation" until the Forest Service has more conclusive evidence as to such species' competitiveness. Perhaps this can be established by comparing average tree

growth to available background data to determine whether associated species pose a real threat to merchantable timber.

2) Further, we do not look upon our National Forests as tree farms. Many of the plant species in question are the natural elements of a system in balance. To destroy the diversity of vegetation is to destabilize an entire ecosystem of plants, fish and wildlife evolved to depend on its interconnections.

3) It is important that the Forest Service implement true preventive measures. Currently, these are substituted with early treatment. You must develop and implement practices which will eliminate or greatly reduce conditions favoring the growth of pioneer vegetation such as salmonberry, alder and ceanothus. To do this, . . .

4) . . .the management plan should provide for the least disruption of ecosystems. The Forest Service needs to conduct research through which to better understand the Forests' natural systems. Data collection in the field and monitoring and evaluation will be necessary. Controlling associated vegetation, and other such interventions, must have minimal impact on the ecosystem. Ceanothus enters after prescribed burns, and alder proliferates in disturbed soils. The Forest Service needs to look at silvicultural prescriptions for vegetation management that create the least disturbances in the system. Less burning and dragging of timber means less nitrogen fixers that could potentially compete with new timber growth.

5) Unlike the Vegetation Management Team, WWC believes that many species of fish and wildlife are adversely effected by the use of herbicides. There are some real problems with the wildlife section of the DEIS: The Forest Service makes the assumption that the use of herbicides will have no impact on fisheries, wildlife, or the environment. This is based on wholly inadequate data. The Forest Service needs to identify data gaps and fill in those gaps wherever possible. The Forest Service must determine what is and is not known of the impact of sub-acute toxicity on fish and wildlife, as it has done for human health. Further, we ask that you monitor for those impacts. Habitat alterations make it impossible for certain species to survive, and an unbalanced ecosystem is very difficult to manage.

6) Herbicides should be used only as a last resort. The Forest Service must commit to using the least amount of herbicides possible and integrating natural processes as management tools. Methods of prevention and non-chemical controls must be developed and implemented before the introduction of herbicides.

7) Lastly, health concerns identified in Alternative E must be incorporated into all other alternatives. The Forest Service must continue to analyze its use of herbicides and choose only those herbicides that are least toxic, do not leach into groundwater, and have the least adverse effects on the environment. The use of 2,4-D and amitrole must be eliminated because they are proven health hazards. Fosamine and diuron should not be used because there is an absence of information on their risks to the environment and people. Mitigation measures as described in the EIS are not adequate; there must be larger buffer zones for riparian areas and there must be buffers for residential areas.

Thank you for this opportunity to comment.

Sincerely yours,



Kristen Shepherd  
Administrative Assistant



## WESTERN FOREST INDUSTRIES ASSOCIATION

1500 S. W. TAYLOR STREET • PORTLAND, OREGON 97205

TELEPHONE

503-224-5455

February 15, 1988

Mr. James F. Torrence, Regional Forester  
Pacific Northwest Region  
USDA - Forest Service  
P.O. Box 3623  
Portland, OR 97208

Dear Jim:

The purpose of this letter is to provide comments to the Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation. Western Forest Industries Association is a forest products industry trade association with members throughout the Pacific Northwest Region. Our members are primarily small business forest product manufacturers who rely on the National Forests for their timber supply. Since the Vegetation Management Draft Environmental Impact Statement (VMDEIS) has the potential to significantly effect timber supply, we are keenly interested in the issue.

WFIA has participated in an effort coordinated by Oregonians for Food and Shelter to review the VMDEIS for its technical and legal adequacy. WFIA endorses the comments of OFS and asks you to view their comments as part of WFIA's.

Through our review of the VMDEIS, WFIA has been very frustrated with the understandability of the weighty documents. We are extremely concerned that the underlying theme of the VMDEIS process has been to create a document that will be "politically acceptable" to the special interest groups that have been involved in the long-standing herbicide debate. This is the message that your staff gave us prior to release of the VMDEIS. Your objective was not to prepare a technically and legally sound document, it was to prepare a "saleable one". The result of this inappropriate objective is a document that is neither technically or legally adequate. The following comments identify some of the more blatant shortcomings of the VMDEIS.

### Reliance on Draft Forest Plans

A serious basic flaw in the entire VMDEIS is the reliance and incorporation of the preferred alternatives from the as yet, uncompleted Forest Plans for the 19 National Forests in the Region. The VMDEIS states (DEIS IV-53) that the "allowable sale



quantity from Pacific Northwest Forests has been estimated at 3.8 to 4.3 billion board feet per year in the near future, as Forest Land Management Plans are developed and implemented." Assuming that the draft preferred alternatives represent the actual outcomes of the forest planning process makes a sham of the public involvement processes recently held and currently underway on the individual forests. If your decision on the new plans has already been made, as the VMDEIS indicates, why even ask for public comments on the draft forest plans? Do you plan to revise your draft decisions in the final forest plans? Incorporating the draft plans into the VMDEIS provides a foundation for analysis that has the potential to change significantly, if you are sincere in your statements that there will be substantial changes between the draft and the final forest plans.

The EIS process requires identification of impacts of the proposed action. The VMDEIS characterizes these impacts as effects on the draft forest plans. Changes to the forest plan between draft and final will render the VMDEIS inadequate in terms of displaying what the impacts of the proposed action really are. In addition to tainting the VMDEIS process, the incorporation of the draft forest plans casts doubt on the sincerity of the public involvement process on each of the individual forest plans.

We have commented to you in many forums including comments on the individual forest plans that we feel the draft forest plans illegally constrain the timber productivity of the National Forests. Through the Minimum Management Requirement process, the forest have arbitrarily allocated productive forest land to non-timber uses. These MMR's are the agency's view of your minimum legal requirements and therefore have been applied unilaterally in each and every alternative. WFIA has participated in the Northwest Forest Resource Council's administrative appeals of the MMR process. We feel your application of MMR's violate the National Environmental Policy Act, the Multiple Use Sustained Yield Act and the Administrative Procedures Act. The VMDEIS, through incorporation of the draft forest plans, joins in this serious legal and procedural violation.

The VMDEIS fails to contain a no-action alternative.

Inherent in the VMDEIS's incorporation of the draft forest plans, is failure to include a true no-action alternative as required by NEPA. NEPA procedures regarding the no-action alternative were clarified by the Council on Environmental Quality (CEQ) in the "40 most asked questions" about NEPA":

"The first situation might involve action such as updating a land management plan where ongoing programs initiated under existing legislation and regulations will continue even as new plans are developed. In these cases no-action is no change from current management direction or level of



management intensity...the 'no-action' alternative may be thought of in terms of continuing the present course of action until that action is changed. Consequently, projected impacts of alternative management schemes would be compared in the EIS to those impacts projected for the existing plan." 46 Fed. Reg. 18026.

The VMDEIS uses Alternative B as the no-action alternative and the basis for comparisons with the other alternatives. Alternative B is the aggregate of the preferred alternatives from the draft forest plans, none of which are finalized and some are still out for public comment. The VMDEIS should use the existing plans as the no-action alternative as described above. Even though those plans called for the application of herbicides and herbicides aren't currently being applied, those plans represent the legal documents which presently guide the management of the individual National Forests. Until those plans are formally amended, they must serve as the no-action alternative.

The projection of impacts based on a regional Allowable Sale Quantity of 3.8 to 4.3 BBF/Year masks the impacts of vegetation management on the existing plans potential yield of 5.1 BBF/Year. The existing plans have a significantly different land base than that which is proposed in the draft forest plans. Also, in many instances management intensities are different, thereby requiring different levels of vegetation management.

The VMDEIS does not include an adequate range of alternatives.

The VMDEIS must explore alternatives for vegetation management that produce positive social impacts in terms of employment and present net value. Although Alternative G is described as generating some positive impacts, that is only the cases when it is compared to Alternative B which assumes a 20 % drop in ASQ when the new plans are implemented. As discussed above, this is a serious procedural flaw that infects the entire VMDEIS. The VMDEIS must evaluate alternatives that incorporate aggressive use of herbicides to generate positive economic benefits.

The VMDEIS fails to identify forest by forest impacts.

As discussed above, an important test of an EIS is how well does it disclose the impacts of the proposed action. The VMDEIS does not include individual National Forest impacts of the alternatives. This is an inexcusable shortcoming of the document since WFIA, among others requested this information prior to the release of the draft. We were assured by everyone from the Chief of the Forest Service on down that this information would be included.

It is impossible for WFIA, our members and other interested parties to comment intelligently on a proposal that fails to

identify what the actual impacts will be on any given National Forest.

The VMDEIS identifies three preferred alternatives.

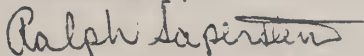
As another example of the convoluted logic of the VMDEIS, three preferred alternatives are identified. This action further confuses the reviewing public by not indicating what the Forest Service is proposing to do. Meaningful comments are not possible since the VMDEIS gives no indication as to which direction it plans to go or the reasons why a preferred alternative is selected. The VMDEIS should identify one and only one preferred alternative.

Conclusion

The VMDEIS should be redrafted or supplemented to remedy the serious flaws discussed above and those identified by Oregonians for Food and Shelter. Until these critical weaknesses are eliminated, the Vegetation Management EIS will not be acceptable to WFIA or the courts.

WFIA supports aggressive use of herbicides and other appropriate vegetation management tools. We also recognize how important it is to have an acceptable EIS to allow the application of herbicides. We urge you to make the recommended changes in the VMDEIS so the National Forests can once again be managed using all available tools. We would be willing to meet with your staff to discuss any of our recommendations.

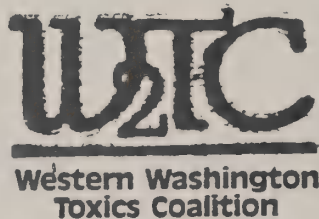
Sincerely,



Ralph Saperstein  
Vice President, Forest Policy

RS.048

cc: Oregon Congressional Delegation  
Washington Congressional Delegation  
Governor Neil Goldschmidt  
Governor Booth Gardner



February 15, 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, Or 97208

Comments on Region 6 Forest Service Vegetation Management EIS

Dear Gary,

I'd like to begin by thanking you, Jan Engert, the members of the I.D. team, and all the other people who contributed time and energy to the process of developing this document. The leadership displayed by the Forest Service in its implementation of the NEPA public participation requirements; and the interpretation of the purpose of NEPA, deserves applause. It serves as a good model for other agencies to emulate.

In general, we commend the Forest Service on the massive effort to analyze and address a wide range of potential impacts that could occur from vegetation management. However, there are several areas that are still of concern:

1. The very title of the document and ensuing language presents a bias or preconception regarding associated vegetation. Recent research, and ongoing monitoring within the Forest Service itself, demonstrate that the traditional, agricultural view of associated vegetation -- as competing vegetation -- may not be valid. We would suggest that all references to competing or unwanted vegetation be changed to associated vegetation.

2. Although human health impacts receive fairly thorough treatment (see specific comments below) impacts to wildlife, soils, water, and aquatic organisms are only given cursory, inadequate treatment. Faulty assumptions are made based on little or no information. 1502.22 of NEPA requires agencies first to identify data gaps. This has not been done for environmental, wildlife, and fisheries impacts. Not only does identification of data gaps enable the public and agency personnel to make informed decisions, but it can provide future direction for research and monitoring. We have resubmitted NCAP's scoping comments regarding impacts on wildlife from herbicide use and slashburning. These comments provide guidance on the types of impacts that must be addressed. We have read comments submitted by the Washington Department of Wildlife and suggest that the Forest Service work closely with this and other pertinent agencies and environmental groups to develop these sections.

3. It would be useful to identify the current state of knowledge and understanding regarding forest ecosystem interactions. Intensive forest management is based upon assumptions about the forest ecosystem which are increasingly being eroded as more information becomes



available on issues such as long-term productivity and beneficial plant interactions. These assumptions are used to set damage and action levels from so called competing vegetation.

4. Much of the language which describes the alternatives (particularly alternative D) is vague. It will provide limited direction to district managers and the public regarding implementation. Many of our specific comments will be aimed at clarifying concepts and in some instances misconceptions.

#### 5. Impacts to Human Health

The DEIS has taken significant steps over previous documents in presenting the data available to assess the impacts of herbicides upon human health. The DEIS has identified major gaps in the data essential to assessing health effects.

The DEIS inadequately addresses the issue of inert ingredients. Inerts may make up as much as 50% of a formulation. This could be a significant portion of the toxic burden. The Forest Service does not know what inert ingredients are present in the pesticides they propose to spray and therefore cannot tell the public exactly what chemicals they may be exposed to. They fail to discuss the stunning implications of this for risk assessment, environmental monitoring, potential damage, and right-to-know.

In light of the enormous data gaps and the issue of inert ingredients the quantitative risk assessment by Labatt Anderson is meaningless and should be removed from this document altogether. The significance of inerts should be more clearly spelled out and specific examples of synergism should be included to exemplify the types of chemical reactions that could occur.

It is distressing to read that the Forest Service is not considering a range of options to force disclosure of inert ingredients for the specific formulations that they are using. This type of activity could be conducted in conjunction with other agencies.

All recommendations in alternative E regarding safety precautions, training, and elimination of certain herbicides should be included in all of the alternatives. In addition general guidelines should be adopted regarding criteria for selection of a particular herbicide including: least hazardous to human health; least toxic to non-target organisms; least disruptive to the ecosystem; will not leach through soil or otherwise reach water.

6. We have chosen to support alternative D which we feel most closely approximates an Integrated Pest Management approach. Some redefinition and modification to this alternative is needed and is described below. The reasons that we support an IPM alternative are:

1. It requires a step-by-step decisionmaking process;
2. It emphasizes prevention;
3. It maintains long-term site productivity;
4. It maintains diversity;
5. It has the least impact upon the environment (except for the no action alternative);
6. It provides for the most public participation in planning for vegetation management.

#### Modifications to Alternative D

##### 1. Prevention:

The EIS defines prevention as taking early action before vegetation damages crop trees. That is early treatment, not prevention. Prevention really means developing and implementing management methods which will eliminate or reduce the conditions favoring the growth of associated vegetation. For example, alder comes in on disturbed soils. In the silvicultural prescription, foresters would consider alternative harvest methods which would reduce

disturbance and hence decrease alder intrusion on a site.

## 2. Identification of beneficial and non-beneficial vegetation interactions:

As the knowledge of forest ecology increases, our understanding of the interactions between plants expands. However, several questions remain unanswered and must be addressed through monitoring and research. Such questions as: What function and purpose does associated vegetation serve within the ecosystem? What are the relationships between crop trees and associated vegetation? When does competition occur? What are the criteria used to establish damage thresholds? If one of the criteria is tree growth, are objective site specific standards or histories available to predict tree growth on any given site? Some of these questions may only be answered on a site specific basis. However the framework for asking these questions must come from the regional office.

## 3. Monitoring and recordkeeping:

The overall objectives of a monitoring system are to pinpoint precisely when and where pest problems may become intolerable and to determine effectiveness of treatment actions. Specific records must be kept of important factors in the ecosystem including information on associated plant species, environmental factors that influence plant survival and growth, and various indicators in the ecosystem that maybe important to maintaining long-term health and productivity of the forest ecosystem.

## 4. Identify damage thresholds and action levels:

Damage thresholds are injury levels at which the pest population size creates intolerable damage. Action levels occur earlier than damage thresholds and signify when a treatment action is taken in order to prevent reaching an intolerable injury level. Treatments of associated vegetation would only be allowed to occur when evidence is available that significant damage or growth loss will otherwise occur.

## 5. Treatment:

All treatment activities should meet the following criteria: least disruptive of natural controls; least hazardous to human health; least toxic to non-target organisms; least damaging to the general environment.

Herbicides would be used only as a last resort. What does this mean? (The following is reprinted from NCAP comments sent to the Forest Service. It specifically identifies steps to be taken by the Forest Service in order to demonstrate that herbicides are being used as a last resort.)

"In operational terms, it means a demonstrable, good faith effort to manage vegetation with the least use of herbicides that is feasible. (Feasibility may be physical, economic, logistic, etc. It means you can do it without putting undue strain on staff, budgets, etc.)

Last resort use would involve demonstration that :

- a. A vegetation problem does or will soon exist on that site.
- b. Prevention of the vegetation problem is infeasible or the time during which prevention would have been feasible has passed.
- c. No nonchemical approaches are currently available that will, by themselves, manage the problem.

Use of herbicides should include demonstration that:



- a. The region, forest, or district is making an attempt to develop alternative management practices that will eventually minimize or eliminate this particular need for herbicides.
  - b. The particular herbicide and application method chosen for use is the least toxic herbicide for that purpose, will be the least likely to leach through that soil or otherwise reach water on that site, and will exert the least adverse effect in that situation (e.g., with that mode of application, proximity of residences, collection of species).
- In other words, even when herbicide use is called for, attention should be paid to considerations other than purely economic."

### Implementation

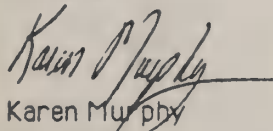
It is clear from our discussions with foresters on the Mt. Baker - Snoqualmie that they consider Alternative D a resumption of pre-injunction activities. This is not a correct view of Alternative D. Adoption of alternative D as the preferred alternative will entail clear policy direction from upper level management that is directly communicated to district managers and other Forest Service personnel. All too frequently, lower level staff feel left out of the decisionmaking process. Directives regarding implementation of policies are delivered by upper level management without interpretation or guidance as to their implementation. This fosters resentment and a sense that upper level management is removed from the fieldwork and consequently does not develop policies that can be implemented. Ultimately, if this situation is not rectified the policy fails, management practices remain stagnant, Poor management practices persist, and agency credibility with the public is lost. The regional office, in addition to developing an overriding policy statement, must make a commitment to staff training in Integrated Pest Management and interpretation of the policy, develop guidelines and blueprints for monitoring systems, develop criteria for treatment, promote research into alternatives, and act as the coordination center for information throughout the region. There must be a system of accountability set up which will ensure that policies and guidelines are implemented.

### Public Participation

As stated earlier, the Forest Service has developed a model public participation process. We assume and urge that this pattern of public involvement continue at the district and forest level. We will continue to look forward to working with Forest Service personnel.

Thank you.

Sincerely,

  
Karen Murphy  
Director



## Western Wood Products Association

Yeon Building, 522 SW Fifth Avenue • Portland, Oregon 97204-2122 • 503/224-3930

January 7, 1988

Mr. James F. Torrence, Regional Forester  
Pacific Northwest Region  
Forest Service, U.S.D.A.  
P. O. Box 3623  
319 S.W. Pine Street  
Portland, Oregon 97208

Subject: Comments on DEIS (10/87) Managing Competing and  
Unwanted Vegetation

Dear Mr. Torrence:

We have reviewed the subject proposals for vegetation management and the supporting data presented. While the Forest Service has probably prepared sufficiently to satisfy the Merrell v. Block injunction, we are very concerned that the DEIS is not adequate to provide necessary planning and management direction to the forests.

### Alternatives

It is very apparent that the DEIS fails to present a reasonable range of alternatives and the chosen manner of presentation does not convey the message that herbicides applied according to your own prescriptions are a safe and indispensable management tool to assure forest productivity in many areas of these national forests. There are significant tactical and technical errors in the subject documents that weaken credibility and hinder opportunity for positive, constructive response during the comment period. After evaluating the alternatives, as presented, we find none that are supportable. The OFS "B-PLUS" alternative is the best option currently available to focus opinions of the various publics. We cannot even support any of the productivity oriented alternatives - "B+", "B" or "G" because they have weakness common with the entire range of choices presented. So many wrong assumptions, oversights and errors permeate the alternatives which are then presented in such a narrowly structured and slanted manner that there is no opportunity to consider and comment upon other viable management options. There is a void in the DEIS between "B" and "G" which could and should have been defined and presented in the DEIS range of

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FAX: 224-3934

Mr. James F. Torrence  
January 7, 1988  
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alternatives. We recommend that there be significant revisions in the DEIS and that a supplement be published for further review.

It was not unexpected that the Region would present a preferred alternative consistent with an aggregation of preferred alternatives in the proposed land and resource management plans. The further presentation of two vastly differing alternatives also characterized as "preferred" is highly questionable and improper NEPA procedure in our opinion. This apparent lack of best judgment is likely to be exceedingly confusing to many reviewers, thus not facilitating the decision process.

While a conglomeration of proposed plan preferred alternatives was inevitable, utilizing Alternative "B" as a so-called reference for comparison purposes is not well employed in the DEIS. The manner in which this "reference" was used as a zero sum in the economic analysis (DEIS II-33, 35) tends to convey an impression that a negative PNV for all alternatives except "G" is real and further that state-of-the-art vegetation management as in "B" has no value in net benefits.

Chances are very good that most of the proposed plan preferred alternatives will never be implemented as presented - a consideration that makes the utilization of Alternative "B" as a "Reference" very inappropriate. While there are alternatives presented that approximate the "No Action" and nonmarket emphasis requirements, none appear that exhibit current RPA Program (36 CFR 219.12(f)(6) or market opportunity emphasis. We do not believe that "G" is sufficiently responsive to these requirements. It would be most appropriate to include an alternative that incorporates community stability alternatives proposed by national forest user group coalitions. The partial array of alternatives presented in the DEIS does not fulfill the analysis goal of maximization of net public benefits and is incapable of approaching this goal due to an arbitrary constriction of the forestland base programmed for "full yields" that even exceeds the reductions in productivity proposed in the plans. (DEIS A-37). The analysis for timber growth and yield should be based upon total suitable and available productive forest area. Nowhere in the DEIS is there a straightforward statement of the decision criteria that are being used to make these critical determinations.

Mr. James F. Torrence  
January 7, 1988  
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#### The Risk Index Approach

Attempting to ascertain difference in risk by "comparing the numbers of acres in each alternative" (DEIS II-25) is not a credible approach. The assumption that relative risks between use of tools is proportional to area treated (therefore, less acres lessens risk) is a fallacy most inappropriate to apply in the DEIS. The only real correlation of the risk of worker accidents with the magnitude of acres treated that is apparent in the data presented concerns the manual method. This concern cannot be dismissed as a simple matter of difference in professional opinion since the procedure is clearly erroneous in dealing with matters that are likely to influence the opinions of certain publics on the merit of the alternatives.

The "Comparison Risk Indices (DEIS II-26, 27) as applied in this analysis is invalid since the method distorts the degree of risk relative to the various action alternatives. There is no baseline or other objective data. An acceptable analytical approach must necessarily express the degrees of risk by alternative per unit area. For example, the relative risk for each alternative could be computed and displayed per thousand acres as a basis. Treating degrees of risk as suggested is not likely to be construed as biased or deceptive as the DEIS presentation may well be.

#### Other Comments on the Evaluation of Risk

It is true that there is "no convincing evidence that exposure to herbicides is more or less hazardous than exposure to smoke." (DEIS II-25, 26). The levels of hazard to human health and air quality from the use of prescribed fire in forest fuels has been evaluated by Hall (PNW 1972) et al. The discussion of possible risks from herbicide in smoke is a nonissue that should not be recognized in the DEIS except to state that the matter is a peripheral concern for which there is no supporting evidence of health hazard.

Accidents attributable to wildfire control have nothing to do with vegetation management and therefore should not be associated with risk of accidental injuries due to prescribed fire treatments.



Mr. James F. Torrence  
January 7, 1988  
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There will always be "problems with perceived risks" threatening to move the Forest Service out of the comfort zone in any pro active forest management endeavor to implement cultural forestry practices. These are political forces at work that are not proper considerations to incorporate in the DEIS analysis.

Other Comments on the DEIS

There are inconsistencies between statements referring to vegetation management on specific forests and information contained in the forest plan documents. For example, the Siuslaw Forest is all but ignored in the analysis except for a reference to Turpin (1987) alluding to "new information and methodology" (A-14) which has aided this forest in coping with the denial of herbicide use. The Siuslaw plan DEIS (III-13) assumes that herbicide use will be available and timber yields and costs of practices reflect that option. The economic analysis in the subject vegetation management DEIS is based solely on timber and forage resources, whereas, other herbicide applications such as roadside brush and noxious weed control should have been considered. The Olympic plan indicates herbicides are needed for roadside brush control and this was not considered in the DEIS either.

The statement that "we assume that prices are insensitive to volumes offered" (DEIS B-5) is pure economic nonsense. Also, on that same page, we urge that the one percent per year increasing real price trend be revised upward to approximate the actual trend and supply and demand interactions. The one percent is better than the zero percent once employed but is not very useful in forest economics in this region. A good example of how well one percent has not proved useful in forest management applications was the economic analysis of the budworm epidemic indicating no suppression program needed which has subsequently caused substantially more damage than anticipated by this method.

The DEIS should estimate and display the cost in benefits foregone since the injunction was invoked in terms of 1986 real dollars.

Either cut out all the generalized pros in the DEIS in Chapter III Affected Environment and Chapter IV Environmental Consequences or relate these subjects to



I/B Public Participation  
and Consultation

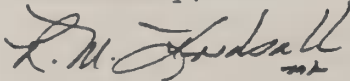
Mr. James F. Torrence,  
January 7, 1988  
Page 5

vegetative management and the alternatives in an objective quantitative manner. There is no point in cluttering the documents with broad discussion in vague generalities that do nothing to enhance the decision process. Considering the vastness of the body of literature on herbicides in forestry, unequalled pertaining to any other subject of forest cultural practices, the text is insubstantial in the majority.

We urge that the DEIS be revised to adequately address vegetation management in a manner that will provide substantial management direction toward the preparation of the forest plans.

Thank you for the opportunity to comment.

Sincerely,

A handwritten signature in dark ink, appearing to read "R. M. Fredsall", with a small mark below the name.

R. M. Fredsall  
Director  
Resources and Environment

msb

001444



Tacoma, Washington 98477  
Tel 206 924 2345

. February 12, 1988

Mr. Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P. O. Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

In developing the Region 6 Draft Environmental Impact Statement (DEIS) for "Managing Competing and Unwanted Vegetation", your team tackled one of the most important, and as yet unresolved issues facing National Forest management in Region 6. Not only will this effort significantly affect the ability of the Forest Service to manage vegetation, but how well it is accomplished will also directly affect future forest productivity and yield from this Region's National Forests.

The DEIS, as written, contains a number of deficiencies that make it difficult to endorse the Preferred Alternatives. As a result, our comments address a number of concerns that must be resolved before the Final EIS is completed.

DEIS Process:

The array of options presented in the draft EIS does not develop fully the vegetative management alternatives available to the Forest Service. Rather, the DEIS presents different combinations of tools and the risks associated with each combination. Because none of the Alternatives is goal oriented, e.g. maximization of growth and yield on those acres managed for timber, no single Alternative adequately addresses the range of vegetation management options available to the Forest Service.

The Preferred Alternatives B, D and E, taken together, provide for the use of the full range of vegetative management methods. None of the vegetative management methods are rejected based on the inability to manage the human health risks. However, the Alternatives arbitrarily restrict the number of acres that will be treated using herbicides or prescribed burning. If the risks are manageable, it is not clear what the justification is for recommending Alternatives that restrict the use of herbicides and prescribed fire when conditions warrant the use of these methods.

Further, it is inappropriate and confusing to propose three Preferred Alternatives; B, D and E. These should be combined into a single Preferred Alternative that will control competing vegetation in the

Mr. Gary Larsen

February 12, 1988  
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safest and most cost effective manner. A comparison of the three Preferred Alternatives leads the reader to question the reasons for keeping them separate. The quantitative data presented does not support favoring one option over another.

#### Relationship to NFMA Plans:

The draft Forest Plans have recently been released for all of the Region 6 National Forests. These plans were developed with the assumption that all vegetative management methods would be available, including herbicides. Even with this assumption, the draft Forest Plans are showing a decline ranging from 18 to 28 percent below recent annual harvest levels. If herbicide use is restricted through this DEIS process, then the Final NFMA Plans must be supplemented to reflect any reduced growth and yield resulting from inability to implement an effective vegetation management strategy.

Alternative B in the DEIS proposes to manage "competing and unwanted vegetation [that] approximate the direction presented in [the] proposed Forest Plans". Yet, Alternative B assumes an Allowable Sale Quantity (ASQ) of between 3.8 and 4.3 billion board feet per year. The Average Annual Potential Yield of the current existing plans is 5.1 billion board feet. Region Forester Torrence stated in early January 1988 that if all of the Preferred Alternatives in the Forest Plans were adopted, the Region 6 harvest would continue to be 4.7 billion board feet. Understanding what harvest goal will be sought by the Forest Service requires a clear understanding of both the draft NFMA Plans and the Vegetation Management DEIS. These differences between the draft Plans must be reconciled in the Final Plans.

Further, it is not clear how the Final NFMA Plans would be modified if Alternative B were adopted; the same is true if Alternatives B, D and E, or G were adopted. Alternative B is intended to support harvest levels in the Preferred Alternatives of the draft Forest Plans, yet the draft Vegetation Management EIS proposes a combination of Alternatives B, D and E as the Preferred Alternative. The draft NFMA Plans and the Vegetation Management DEIS should not be made Final until the combined impact of the Preferred Alternatives of each is fully analyzed.

#### Vegetative Management Practices:

The comparison of the assumed efficacy and cost effectiveness of the various vegetative management tools is incomplete. The evaluation of costs appears to be inconsistent throughout the DEIS. Of particular concern is the lack of realistic recognition of expected retreatment cost using each of the various tools, and the difficulty of obtaining adequate labor for manual control of vegetation, especially retreatments.

Mr. Gary Larsen

February 12, 1988

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Our experience with manual vegetation control in limited situations leads us to question both the efficacy and the cost effectiveness of large scale manual treatments. The Final EIS should provide supporting evidence that manual treatments would be viable on the scale contemplated in the Preferred Alternatives.

For those situations where herbicide use is restricted or prohibited, the alternative treatment to accomplish a Forest's vegetation management plan needs to be addressed, particularly if labor availability limits the practical use of manual control methods. Manual and biological brush control methods will result in significant loss of mean annual increment if these techniques are unsuccessful, never before having been attempted on the scale proposed. Therefore, the Final EIS must adequately address the downside risks on growth and yield, and on future harvest levels, if anything less than an aggressive vegetation control strategy is adopted. For this reason, the Final EIS should clearly show the expected gain or loss in mean annual increment, in cubic feet, on both a per acre and aggregate basis for each of the available vegetation control methods that will be considered and used.

The description of Alternative D (II-12) talks in broad generalities about managing unwanted vegetation through, "early preventive measures, monitoring of sites, and frequent evaluations of conditions and practices". The description of Environmental Consequences (IV-54) further describes what we can expect under Alternative D. Not enough information is presented to understand why the Forest Service has sufficient confidence in this Alternative to make it one of the three Preferred Alternatives, and it is not clear what specific sequence of treatments is actually proposed, except for the use of herbicides if other techniques fail.

#### Conclusion:

Our analysis of the draft Vegetation Management EIS leaves us with a number of concerns and unanswered questions. These include:

- . Selection of a Preferred Alternative is complicated by combining Alternatives B, D and E without knowing which vegetation management strategy will actually be implemented. Of all the Alternatives presented, Alternative G appears to come closest to describing a vegetation management strategy that has the potential for maintaining Region 6 growth yield and harvest at current levels if it is implemented. All other Alternatives are likely to result in a reduction in growth and yield, and consequently will lead to a downward adjustment in Allowable Sale Quantity on Forests where vegetation management is an essential silvicultural practice.
- . The efficacy and cost efficiency of several Alternatives, including D and E, are not adequately addressed.

# I/B Public Participation and Consultation

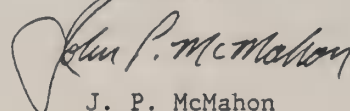
Mr. Gary Larsen

February 12, 1988  
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- . Alternatives other than B or G put a great deal of faith in methods that have not been tested or proven in practice.
- . The impact of the Preferred vegetation management plan on the Final Forest Plans cannot be fully understood until the two interdependent processes are integrated.
- . The DEIS identifies alternative tools for application on a broad array of acres; none of the Alternatives except possibly B or G would accommodate on-the-ground, site specific prescriptions. Site specific prescriptions are the most cost effective and environmentally sensitive, as well as most likely to successfully control competing vegetation.
- . The DEIS will not likely go unchallenged in its present form, including legal challenges under NEPA. The Forest Service should consider supplementing the DEIS to address the numerous deficiencies before the Final EIS is prepared.

We appreciate having the opportunity to comment on this DEIS. Although it contains a number of serious shortcomings, the problems can be adequately addressed in a Supplement without severely disrupting the planned review and implementation schedule.

Sincerely,



J. P. McMahon  
Vice-President,  
Timberlands

bek  
vegman.jpm.disc4



## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

It is the opinion of The Wildlife Society that if any vegetation management occurs within the National Forests there is some accompanying effect on wildlife populations and species diversity. This is because vegetative management usually results in a change in habitat components such as food, cover, water quality, or plant and animal community composition.

Such habitat changes are not necessarily a problem (except perhaps for threatened or endangered species), as similar changes occur with natural plant succession. However, man-made changes are typically faster and more extensive than natural succession, which reduces the potential through the options outlined in the DEIS for vegetative management for wildlife communities to be harmed or species diversity greatly reduced.

It is the opinion The Wildlife Society that Alternative D would provide the greatest latitude for site specific management plans in which wildlife impacts could be evaluated. Additionally, a stated goal of Alternative D is to produce the least alteration of natural ecosystems and processes, which would seem to offer the greatest potential for maintaining, and perhaps improving, existing wildlife habitat. We recommend that Alternative D have an additional objective of maintaining wildlife habitat diversity in all levels of the ecosystem.

However, we feel strongly that the preferred alternative must identify the need for, and provide for, site specific "Biological Assessments" of each proposed project and the accompanying mitigation measures regardless of the alternative chosen.

We also noted that the DEIS did not address wildlife monitoring. We feel the preferred alternative must describe fully how effects on wildlife habitat and wildlife populations would be monitored, who would be doing monitoring, what effects would be monitored and how the monitoring results would change planned work or specific projects.

Name: John A. Crawford, President

Address: Oregon Chapter, The Wildlife Society

Department of Fisheries & Wildlife, Oregon State University

Nash 104, Corvallis, OR 97331-3803

(503) 754-4531

# I/B Public Participation and Consultation

We have a general concern that the standard testing of the various chemicals, including inert ingredients, planned for use is inadequate for the risks to wildlife species to be determined. The DEIS does not disclose, or address, the effects on wildlife of sub-lethal/chronic doses of the chemical planned for use. We feel the DEIS must propose testing procedures that would disclose risks to wildlife and that any risks to wildlife species be identified.

Other major problems with Alternative D relate to the lack of specific mitigating measures for the adverse impacts on wildlife that were identified in Chapter IV. The DEIS further states that these effects could be "significant" if mitigation measures fail.

We feel specific mitigation measures must be applied on a forest wide basis, a minimum management measure to prevent unacceptable damage to wildlife populations, species diversity, and wildlife habitat. The following are several specific examples of where the need for specific mitigation measures apply to Alternative D:

## Effects on Diversity

Alternative D treats 115,600 acres mechanically. There is a need to provide specific mitigating measure for projects that treat large blocks of juniper of Ceanothus.

## Prescribed Burning

The proposed annual prescribed burning of 125,800 acres of cover fails to provide specific mitigating measures for the potential loss in understory brush, larger woody debris, and standing snags and the resultant loss of habitat diversity.

## Chemical Effects

No specific mitigating measures are listing to offset the possible "adverse impacts on available wildlife forage or cover within the project areas".

The following are comments offered by the Oregon Chapter of The Wildlife Society on the other alternatives:

### Alternative A

Although little toxicity research has been done on the effect of herbicides on wild animals, we agree as stated that the herbicide use outlined in this alternative would pose little hazard from direct effects on wildlife. The use of herbicides as outlined can certainly have great indirect effects on wildlife populations, however, these changes may occur regardless of the means by which vegetation is altered.

**Alternative B**

This Alternative seems less desirable than Alternative D because in many instances it would replace natural processes with active management and have the potential for greater impact on wildlife.

**Alternative C**

It does not seem necessary or desirable in a multiple use Forest to eliminate all vegetative management.

**Alternative E**

There appears to be only subtle differences between D & E in terms of impacts on wildlife. However, it seems logical that if less herbicide use is allowed more mechanical vegetative manipulation will be necessary to meet the alternatives objectives. We feel the mechanical treatment under this alternative can be detrimental to ground dwelling animals.

**Alternative F**

The prescribed burning outlined under this alternative could be compatible with wildlife management goals, if more mitigating measures were developed and site specific "Biological Assessments" were required before project work.

**Alternative G**

This Alternative is the least desirable because it clearly would lead to the greatest loss of wildlife habitat.



# List of Form Letters

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Longview Fibre Company  
P O Box 667  
Longview, WA 98632

Oregonians for Food & Shelter  
567 Union Street  
Salem, OR 97301

Southern Oregon Timber Industries Association  
2680 North Pacific Highway  
Medford, OR 97501

Unidentified



## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

I support the "B PLUS" enhanced alternative for vegetation management. This modification of Alternative B emphasizes preventive management while allowing use of the most appropriate tool for treatment of site-specific problems. "B PLUS" provides Forest Service professionals the flexibility needed to assure a stable, long term timber supply, effective rights-of-way maintenance, wildfire control, range improvements, and noxious weed control in a manner which responsibly protects the public health, worker safety, and the environment. Implementation of the "B PLUS" alternative will meet all reasonable public concerns and do so in an economically feasible manner.

I do NOT support any current or future alternative which will REDUCE jobs; REDUCE revenues to counties for schools, roads and local government; REDUCE personal family income and DECREASE long-term timber production in this region. ECONOMIC IMPACT TO ME, MY FAMILY, MY NEIGHBORS, OUR BUSINESSES, OUR INDUSTRIES, AND OUR REGION IS OF VITAL SIGNIFICANCE.

I feel the tone and language used in the DEIS is strongly biased against herbicides. The final draft should be more carefully written to eliminate such bias and protect against creating negative public perceptions itself.

Forest acres which have been set aside for timber production should be managed for growth enhancement as well as seedling survival. Promoting growth enhancement will help ensure a reliable and adequate future timber supply from a shrinking production land base.

It is unacceptable to predetermine that herbicides or any other viable vegetation management tool, be used as a "last option" only -- regardless of cost, effectiveness, safety, environmental impact or risks associated with the other options. The best method or tool should be used based on site specific data and be evaluated by the same criteria on standards.

The DEIS must provide a workable vegetation management program with adequate flexibility to deal with the tremendous differences in each of the 19 National Forests. I am concerned that too many assumptions are being made based upon a theoretical "average forest" which cancels out the individual extremes that exist in reality.

I disagree with the major concept of basing a technical forestry program on weak, subjective data -- public perception of herbicide risks and a qualitative risk assessment. This is contrary to other Forest Service Regions and the data base required by law to register a pesticide with the United States Environmental Protection Agency.

I support the inclusion of additional Forest Service research and monitoring programs on a forest-by-forest basis. Documenting the effectiveness and impact of various vegetation management methods is essential for proper evaluation and long-term planning.

The alternative chosen should incorporate mitigation measures, such as site-specific diagnosis and analysis, to ensure that all relevant data and information is considered. Certain measures proposed in the draft, such as 100 ft. buffer strips along each side of year-round streams no matter how small and notification of all downstream residents prior to herbicide use, are overly restrictive, unwarranted and in most cases unworkable.

Date \_\_\_\_\_

LONGVIEW FIBRE COMPANY  
P.O. Box 667  
Longview, WA 98632

# Would You Invest 10 Minutes and 22¢ to Ensure the Economic Survival of Oregon and Washington?

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## AN URGENT MESSAGE FROM OREGONIANS FOR FOOD & SHELTER

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**T**hat statement may seem dramatic to the uninformed, but our survival may literally be on the line. If the majority of citizens in Oregon and Washington sit idle and continue to let a small but vocal group of dissenters determine policy in the Northwest, the future for generations to come will be a depressing one.

We are facing decreasing jobs by the thousands, yearly losses of millions of dollars in revenues to our county schools and roads, decreased family income and decreases in one of our region's most valuable natural resources for economic stability—timber. And what will citizens of Oregon and Washington gain for their tremendous sacrifices? A reduction in *perceived risk* to human health and the environment.

If you believe that this is too great a price to pay for the speculative concerns of a handful of dissenters—then make *your voice heard*.

The Forest Service is asking for public comment on its guideline document for managing competing and unwanted vegetation in all National Forests of this region. This document, the Vegetation Management Draft Environment Impact Statement (DEIS), is *different and separate* from the individual Forest Plans you may have also been asked to comment on recently. The DEIS will not just impact one national forest, but will dictate policy for *all 19* in the Pacific Northwest.

While this is a very important forestry program, don't be fooled into thinking that it is strictly a forestry issue. The potential economic effects of this policy-setting process are staggering. Not only could it be devastating to the forest products industry, but it would also set the stage for similar adverse decisions affecting *agricultural* vegetation management in our state.

*We know the dissenters, those who oppose the free enterprise system, have already influenced this process by loudly expressing their views.* Please invest 10 minutes and 22¢ to let the Forest Service and other state officials know that the "silent majority" has had enough.

### WHAT CAN YOU DO?

The answer is simple. Get involved and make your opinion count. Comment, and get others to comment, on this important Vegetation Management DEIS. For those of you who are not *directly* related to forestry, your comments are equally as vital if you live or do business in the Pacific Northwest or use this region's forests for recreation. And, farmers and ranchers, *agriculture* is the next target on the list. Fill out and mail the attached pre-addressed Response Form and *also* consider writing a personal letter to enclose. Your response *does* count—so, please do it NOW!

### THE TRUE PREFERRED ALTERNATIVE IS "B-PLUS":

Oregonians for Food and Shelter (OFS) is helping to coordinate a region-wide citizens response to the DEIS to ensure that both a proper evaluation and high level of public participation will occur.

As part of that effort scientists, toxicologists, medical doctors, economists, silviculturists, foresters, farmers and other taxpaying, concerned citizens have undertaken the task of reviewing this document and creating a "true preferred alternative."

This alternative, called "B-Plus," will be scientifically sound and supported by data: will preserve our region's economic base vital to programs like the "Oregon Comeback"; will protect the environment, safety of workers and human health; and will allow the individual National Forest Supervisors to manage their forests in a responsible and economically efficient manner for their mandated, multiple-use purposes. Your support for this enhanced version of ALTERNATIVE B is critical. Without your support, more than 22,000 jobs representing more than \$500 million a year in personal income could be lost. Timber receipt payments to counties could drop by more than \$60 million a year; and long term timber productivity losses could exceed \$4 BILLION!



## BACKGROUND:

The USDA Forest Service Region VI administers 19 National Forests totaling 24.5 million acres in Oregon and Washington, plus part of a few counties in California and Idaho.

Substantial portions of these National Forests are actively managed for multi-use purposes—to produce timber, recreational opportunities, forage, water, wildlife habitat, and safe travel. To effectively utilize these lands, competing and unwanted vegetation must be controlled.

This relatively large program covers a wide range of management activities, such as: reforestation site preparation and young seedling protection; improvement and maintenance of campgrounds, recreation areas and administration sites; control of brush invasion on range-lands; noxious and poisonous weed control; wildlife habitat improvement; fire management and hazards reduction; maintaining safe and dependable highways, roads, trails, railroads and utility rights-of-way; and research.

Vegetation control can be achieved by using various methods or tools: herbicides, biological control, burning, mechanical and manual techniques. *The best method or combination of methods to use will vary depending on a variety of factors, such as: safety of the worker, human health risk to the public, effects on the environment or wildlife, effectiveness and cost.* Specific data on the type of vegetation and site characteristics are used in conjunction with these factors to determine the treatment for each job. Not all tools are currently available, however. In July, 1983, a suit was filed by Northwest Coalition for Alternatives to Pesticides (NCAP) and others with the goal of halting use of *all* herbicides on federal lands. An injunction was issued stopping all such uses in March, 1984. This court ruling was based upon a legal technicality regarding compliance with procedural steps in the National Environmental Policy Act of 1969 (NEPA), and *not* that herbicides posed an unreasonable risk to man or the environment.

## WHAT'S HAPPENING NOW?

Nearly four years later, the Forest Service has responded to the court's directive by preparing a new Draft Environmental Impact Statement (DEIS) on the vegetation management program in this region. The 300-page DEIS and 700-page Appendices were issued on October 15, 1987. The draft contains seven different alternatives (A-G) for consideration as the region's vegetation management program. The 90-day public comment period is scheduled to end January 15, 1988.

After considering public and governmental agency response to the DEIS, a Final Environmental Impact Statement (FEIS) will be prepared. Based on the information in the FEIS, the Regional Forester, James Torrence, will determine the single vegetation management program to be used by all 19 National Forests.

## THE SEVEN VEGETATION MANAGEMENT ALTERNATIVES:

The Forest Service has presented seven different alternatives for consideration and public comment. Alternatives B, D and E designated as *their* preferred choices\*\*.

The following very brief overview—summary of the alternatives is based on the Forest Service's assessment of their own document. Forest economists do *not* believe these numbers are accurate and are conducting independent analyses. An accurate assessment will indicate: the benefits of vegetation management are *greater* than shown; the risks to man and our environment are *less* than shown; and the economic consequence for choosing each alternative is *substantially* larger than reported. Even the Forest Service's underestimated impacts are significant.

### ALTERNATIVE A:

- Manages vegetation by both preventive and corrective methods at first sign before damage occurs;
- *NO* herbicides can be used;
- DECREASES payments to local governments by \$4.9 million per year;
- DECREASES jobs by 1,100;
- DECREASES personal income by \$28 million;
- REDUCES long-term timber production and DECREASES present net value by \$468 million.

### ALTERNATIVE B\*\*:

- Manages vegetation by both preventive and corrective methods at first sign before damage occurs;
- ALL tools are available for use. Selection made based on site-specific data and best option;
- Maintains current jobs, payments to local governments, personal income and other economic factors. (Note: This is true only if allowable timber harvest levels are not reduced by new forest plans.)

### ALTERNATIVE C:

- *No* vegetation management unless public safety is threatened—correction only;
- Burning and herbicides both prohibited;
- DECREASES payments to local governments by \$57.1 million per year;
- DECREASES jobs by 21,800;
- DECREASES personal income by \$533 million;
- REDUCES long-term timber production and DECREASES present net value by \$3.9 billion.

### ALTERNATIVE D\*\*:

- Manages vegetation stressing preventive methods. Can use corrective measures, but only when threatened by *clear* signs of *significant* damage;
- Herbicides can be used *only* as "LAST OPTION"
- DECREASES payments to local governments by \$7.4 million per year;
- DECREASES jobs by 3,100;
- DECREASES personal income by \$76 million;
- REDUCES long-term timber production and DECREASES net value by \$246 million;
- Manages only 2/3 of forest acres managed in most other alternatives.

### ALTERNATIVE E\*\*:

- Manages vegetation on a preventive basis, at first sign before *significant* damage occurs;
- Severely restricted use of herbicides—several herbicides prohibited, *NO* aerial application allowed;
- DECREASES payments to local governments by \$4.3 million per year;
- DECREASES jobs by 1,400;
- DECREASES personal income by \$33 million;
- REDUCES long-term timber production and DECREASES present net value by \$132 million.

### ALTERNATIVE F:

- Manages vegetation by both preventive and corrective methods at first sign before damage occurs;
- *NO BURNING* for silviculture allowed;
- DECREASES payments to local governments by \$8.4 million per year;
- DECREASES jobs by 3,100;
- DECREASES personal income by \$75 million;
- REDUCES long-term production and DECREASES present net value by \$322 million.

### ALTERNATIVE G:

- Aggressively manages vegetation with all tools, at first sign of damage;
- Uses preventive and corrective measures, but stops short of using growth enhancement techniques;
- INCREASES payments to local governments by \$2.6 million per year;
- INCREASES personal income by \$63 million;
- INCREASES long-term timber production and INCREASES present net value by \$24 million;
- INCREASES jobs by 2,600.

## Dear Mr. Torrence, Regional Forester:

Please consider the following concerns and comments as my personal response to the Draft Environmental Impact Statement on Managing Competing and Unwanted Vegetation released for public comment on October 15, 1987. Furthermore, I am requesting that you incorporate these important environmental and economic concepts into the USDA Forest Service, Pacific Northwest Region's Final Environmental Impact Statement and the Record of Decision.

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THE BOXES CHECKED BELOW ARE OF CRITICAL IMPORTANCE TO ME.

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☐ I support the "B PLUS" enhanced alternative for vegetation management. This modification of Alternative B emphasizes preventive management while allowing use of the most appropriate tool for treatment of site-specific problems. "B PLUS" provides Forest Service professionals the flexibility needed to assure a stable, long-term timber supply, effective rights-of-way maintenance, wildfire control, range improvements, and noxious weed control in a manner which responsibly protects the public health, worker safety, and the environment. Implementation of the "B PLUS" alternative will meet all reasonable public concerns and do so in an economically feasible manner.

☐ I do NOT support any current or future alternative which will REDUCE jobs; REDUCE revenues to counties for schools, roads and local government; REDUCE personal family income and DECREASE long-term timber production in this region. ECONOMIC IMPACT TO ME, MY FAMILY, MY NEIGHBORS, OUR BUSINESSES, OUR INDUSTRIES, AND OUR REGION IS OF VITAL SIGNIFICANCE.

☐ I feel the tone and language used in the DEIS is strongly biased against herbicides. The final draft should be more carefully written to eliminate such bias and protect against creating negative public perceptions itself.

☐ Forest acres which have been set aside for timber production should be managed for growth enhancement as well as seedling survival. Promoting growth enhancement will help ensure a reliable and adequate future timber supply from a shrinking production land base.

☐ It is unacceptable to *predetermine* that herbicides, or any other viable vegetation management tool, be used as a "last option" only—regardless of cost, effectiveness, safety, environmental impact or risks associated with the *other* options. The best method or tool should be used based on site-specific data and be evaluated by the same criteria or standards.

☐ The DEIS must provide a workable vegetation management program with adequate flexibility to deal with the tremendous differences in each of the 19 National Forests. I am concerned that too many assumptions are being made based upon a theoretical "average forest" which cancels out the individual extremes that exist in reality.

☐ I disagree with the major concept of basing a technical forestry program on weak, subjective data—public perception of herbicide risks and a qualitative risk assessment. This is contrary to other Forest Service regions and the data base required by law to register a pesticide with the United States Environmental Protection Agency.

☐ I support the inclusion of additional Forest Service research and monitoring programs on a forest-by-forest basis. Documenting the effectiveness and impact of various vegetation management methods is essential for proper evaluation and long-term planning.

☐ The alternative chosen should incorporate mitigation measures, such as site-specific diagnosis and analysis, to ensure that all relevant data and information are considered. Certain measures proposed in the draft, such as 100-ft. buffer strips along each side of year-round streams—no matter how small—and notification of *all* downstream residents prior to herbicide use, are overly restrictive, unwarranted and in most cases unworkable.

☐ I understand that there are important data which have been promised, but not yet made available to the public. This data includes an independent toxicological peer review, an independent silvicultural peer review and data on each individual forest—all of which are needed to perform an adequate and informed public review of the DEIS. I, therefore, support the formal request made by Oregonians for Food and Shelter and others to extend the public comment period to May 15, 1988.

OTHER COMMENTS: \_\_\_\_\_

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\_\_\_\_\_

\_\_\_\_\_

SIGNED \_\_\_\_\_

NAME (PLEASE PRINT) \_\_\_\_\_

ADDRESS \_\_\_\_\_

CITY \_\_\_\_\_ STATE \_\_\_\_\_ ZIP \_\_\_\_\_



### TO THE FOREST SERVICE:

I wish to make the following general comments concerning your vegetation management draft environmental impact statement.  
(Please check "Yes" or "No" to the following statements.)

- YES NO  
☐ ☐ Herbicide use should be permitted in national forests so long as the Forest Service does a good job of limiting the risk to human health and the environment.
- YES NO  
☐ ☐ A policy of non-use or last resort of herbicides will have a significant adverse impact on the health and productivity of our forests. I support full use of herbicides.
- YES NO  
☐ ☐ A policy of non-use or last resort use of herbicides will have a significant, adverse impact on our state's economy. I support full use of herbicides.
- YES NO  
☐ ☐ Effective, carefully controlled use of herbicides go hand in hand with productive, well-stocked forests. This is an important legacy present-day society should leave to future generations.
- YES NO  
☐ ☐ Demands for forest products and forest recreation opportunities are both increasing rapidly. This is putting increased pressure on our tree-growing land base. Herbicides can help by speeding the growth of healthy new forests.

\_\_\_\_\_  
Signature here, please

Name (Print) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

### TO THE FOREST SERVICE:

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\_\_\_\_\_  
Signature here, please

Name (Print) \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

*EDITOR'S NOTE: To assist the Forest Service in evaluating public opinion concerning herbicide use in national forests, we have inserted a response card in the center of this issue of EVERGREEN. If you wish to comment—and we encourage you to do so—simply tear out the card, answer the "Yes" or "No" questions and return the card to the Forest Service's regional office in Portland. Thanks for your help.*

EVERGREEN is a monthly publication of the Southern Oregon Timber Industries Association, 2680 North Pacific Highway, Medford, Oregon 97501. Sue Joerger, Executive Vice President; Jim Petersen, Editor; Roxi Smith, Research; Mary Smith, Subscriptions. For more information, contact SOTIA, (503) 773-3329.

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**FOREST SERVICE, USDA**

Vegetation Management Plan  
Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

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**FOREST SERVICE, USDA**

Vegetation Management Plan  
Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Carson,

We are strongly opposed to the use of toxic herbicide sprays on our public National Forest and BLM lands. The use of these toxic sprays represents an immediate and constant threat to our children's lives, ourselves, forest wildlife and the integrity of the air and water we all breathe and drink.

It also represents a policy of destruction of the natural botanical diversity of a healthy forest eco-system of which we all are a part of.

We therefore cannot accept any policy that allows the use of these toxic herbicide sprays in our backyard forest lands - for any reason! We feel positive that you will use your better judgement and work to keep our National Forests free of these poisons and adopt management strategies that use only NON-CHEMICAL practices.

Signed \_\_\_\_\_

Name

Address

City

State



## List of Federal Agency Letters

001452 USDA Forest Service, Washington Office  
South Bldg., 12th and Independence Avenue SW  
Washington, DC 20250  
David E. Ketcham, Director, Environmental Coordination

001320 USDA Forest Service, Pacific Northwest Region  
Rogue River National Forest, Star Ranger District  
6941 Upper Applegate Road  
Jacksonville, OR 97530  
William R. Warner, District Silviculturist

001072 USDA Forest Service, Pacific Northwest Region  
Umatilla National Forest, Pomeroy Ranger District  
Route 1, Box 53-F  
Pomeroy, WA 99347  
Dave Price, District Ranger

001016 U.S. Dept. of Agriculture, Soil Conservation Service  
2121-C, 2nd St.  
Davis, CA 95616  
Ronald F. Schultz, State Biologist

001189 U.S. Dept. of Agriculture, Soil Conservation Service  
Spokane, WA  
John Sweetman, Chairman FCD

001071 U.S. Dept. of Agriculture, Soil Conservation Service  
W. 920 Riverside, Rm. 360  
Spokane, WA 99201-1080  
Lynn A. Brown, State Conservationist

000901 U.S. Dept. of the Army, North Pacific Division Corps of  
Engineers  
P O Box 2870  
Portland, OR 97208-2870  
Colonel James R. Fry, Deputy Division Engineer



001228 U.S. Environmental Protection Agency, Region 10  
1200 Sixth Avenue  
Seattle, WA 98101  
Robert S. Burd, Director, Water Division

000902 U.S. Dept. of Interior, Bureau of Indian Affairs  
P O Box 3785, Code 232  
Portland, OR 97208  
Clifford G. Reed, Chief, Branch of Forest Resources  
Planning

000903 U.S. Dept. of Interior, Bureau of Indian Affairs  
Yakima Agency  
P O Box 632  
Toppenish, WA 98948-0632  
Hiram E. Olney, Superintendent

001475 U.S. Dept. of Interior, Office of Environmental Project  
Review  
500 NE Multnomah St., Suite 1692  
Portland, OR 97232  
Charles S. Polityka, Regional Environmental Officer

USFS/Washington

United States  
Department of  
Agriculture

Forest  
Service

WO

001452

Caring for the Land and Serving People

Reply to: 2470

Date: February 12, 1988

Subject: Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation

To: Regional Forester, Pacific Northwest Region

We have reviewed your staff's Draft Environmental Impact Statement (DEIS). Our comments are compiled from reviews by the Environmental Coordination, Wildlife, Land Management Planning, Forest Pest Management, Timber Management, and Range Management staffs.

The Region is to be complimented on the high quality of the documents. Laudatory comments from the Range Management, Land Management Planning, Timber Management, and Engineering staffs, respectively, reflect the quality of the work done.

Reviewing the DEIS for "Managing Competing and Unwanted Vegetation" was a pleasant task. The design and layout of information was very readable, flowed well and outlined the information by alternative very well.

Overall, we feel the documents are clearly written. The appendices, although quite technical, do a good job of documenting a very complex subject. We were particularly impressed with the discussion in Chapter I as it very adequately sets the stage for the included analysis. This chapter introduces and simplifies a very complex analysis so that it may be easily comprehended by the public. The history, scope, and issue sections have been written in precise, understandable language to promote this comprehension. The tie to the forest land and resource management planning process is very well done.

It was apparent that a concerted effort was made to involve the public in the preparation of the document.

We . . . found it to be a well written document. The preparers did an excellent job of addressing this highly controversial and complex subject.

There are six areas about which we have general comments. Following them are comments about specific portions of the text. Following the specific comments, which are compiled from all the responding staffs, are some general comments from the Wildlife and Fisheries staff which pose some interesting possibilities.

General Comments

Incomplete or Unavailable Information The treatment of this is generally very good. However, given the importance of this topic to this EIS and to recent court cases, special attention to its treatment in the FEIS is needed.

In addition to the specific comments below, you should add more frequent in-text references to the applicable parts of the regulation (40 CFR 1502.22), and be sure that each step taken in the analysis is explicitly presented. This would mean structuring the discussion to closely and explicitly mirror the order and language of that section of the regulations.

Alternative B, Reference Some of the costs and effects of Alternative B are presented as "Reference" for the reasons explained in the text. We suggest that you and the interdisciplinary team give serious thought to presenting the actual numbers in the FEIS. This would make the presentation more straight-forward and more easily understood.

Additional NEPA and Appeals Steps Your generally good discussion of the NEPA process is brief in its discussion of "tiering" and quiet in its discussion of the appeals process. Full discussions of these topics will need to be in the FEIS.

Data Consistency There are several places where the data appear to be inconsistent from one table to another. While the Specific Comments which follow will identify some of these, a careful review should be made to detect others. Any differences should be reconciled, or have sufficient explanation given for the differences.

Jobs Your discussion of jobs and social effects would be more accurate if the time period of the effects were more correctly and precisely portrayed. The effects on employment are, for the most part, caused by long-term changes in timber harvest levels. It is important that these effects, most of which will not occur until the end of future or newly established rotations, be shown with the decade in which they would occur. The presentation in the DEIS makes these effects look imminent, not 70 years hence.

Human Health Risks (as seen in pages II-24 through II-28, the material that it is derived from, and summaries of it) Your approach to human health risks is new to most readers, and different from most EISs on this subject. Care must be taken to fully: 1) explain how risks were calculated and presented, and 2) explain what you see as their meaning and implications. This will minimize the potential for confusion and mistrust inherent in new ways of analyzing and presenting information.

### Specific Comments

The following are suggestions and comments on specific items in the DEIS and accompanying documents.

#### Request for Participation #6

Inside Back Cover - The process, as it is presented, assumes that the Record of Decision (ROD) will be signed when the FEIS is filed with EPA. That is not necessary. In addition, and perhaps more importantly, the process does not include the appeal process.

#### Cover Sheet

Page 2 - The Note to Reviewers does not conform with the Chief's direction on the language that is to be employed in this section of the cover sheet, "Duty to Comment."

#### Summary

Page 4, Cost and Benefit Analysis, second line - "[O]ther" should be "others".

Page 6 and 7, Figure S-2 - Alternatives B and G appear very similar in this figure. If the alternatives are more different than the figure would indicate, new wording should be used here.

Page 8, Alternative A, (also Page II-6, Alternative A) - You may wish to use wording like that on page I-5 to indicate that the use of herbicides is enjoined until agency obligations under NEPA are fulfilled. The current wording creates an impression of a permanent, rather than conditional, prohibition.

Page 8, Alternative D - The alternative description should include a statement to the effect that "Herbicides may be used as a last option."

Page 9, Alternative E (also page II-14, Purpose and Theme) - The description confuses those who know of the greater worker safety in aerial application. The description needs to clarify the dual nature of the alternative--aerial application is constrained for public safety, the other safety measures are for worker safety.

Page 10 and 11, Figure S-3 - The display of acres managed by various methods is somewhat confusing.

a) The Category "Receiving No Treatment" may imply that the total acres managed under each Alternative are the same. In actuality, the "total acres" for Alternatives A, B, E, F, and G are of the same magnitude but are not the same. Alternatives C and D have major differences from the other Alternatives. A footnote explaining this category may be helpful.

b) A footnote identifying the types of treatment included in the "Other" category may also be helpful. Most types of treatment appear to be covered by the five identified methods.



Page 12-13, Figure S-4 - It is difficult to evaluate the impact on air quality of Alternative "C" as compared to the other alternatives displayed in Figure S-4. We recognize that it is probably not possible to establish a specific percent increase or decrease in air quality. However, it may be possible to establish a percentage range that would aid in comparing this alternative with the other alternatives.

Page 15 to 17, Mitigation Measures - This discussion will be more clear if you restate that the first two paragraphs are mitigation measures that apply to all methods; and then introduce each method-specific section as the mitigation measures that apply to that method of vegetation management.

Page 18, Figure S-5 - It is difficult to understand how the "Risk Index" rating for Alternative C is the same for both workers and the public. The greater risk of the more extensive (and smoky) wildfires does not seem to be reflected in Alternative C's low rating either.

#### Chapter I

Page I-1, last line - "Making a decision" is a more correct wording than "selecting an alternative."

Page I-13-14, Interagency Coordination - In addition to roles and agencies noted, it would be good to include the U.S. Fish and Wildlife Service and state fish and wildlife agencies among the agencies with responsibilities affected by vegetation management.

Page I-17, "Future Steps for This EIS" - The discussion fails to mention the opportunity for tiering site-specific environmental analysis to this statement. Tiering will certainly happen and it seems appropriate to let the public know that it will be a part of the process.

Page I-17, third paragraph - This presentation fails to identify the requirement to wait 30 days following Notification of Availability of the FEIS in the Federal Register before the action can be taken. This would also be a good point to discuss the opportunity to appeal the decision through the process found in 36 CFR 211.18.

Page I-17, last line of "Future Steps" section - An environmental impact statement may be prepared. If the activity were not pursued, an EIS may well not be needed.

Page I-19, first full paragraph - The presentation and wording here is awkward, and could be improved to aid understanding.

Page I-19, first full paragraph, "4)" - The fourth approach is to "revise" the forest plan. This approach is too limiting as forest plan revision requires re-examination of all issues and a complete recycling through the 10 step planning process required by the planning regulations. We feel that changes can probably be made more easily through amendment of the plan. They would be identified as either a significant or nonsignificant change to the forest land and resource management plan. The process for change should not be limited to "revision" only. And accordingly, the last sentence in the following paragraph



should also be rewritten to state "make changes as needed", rather than "make revisions as needed."

Page I-19, Major Legislation - Add "The Endangered Species Act of 1973 (as Amended)".

## Chapter II

Page II-9, Budget and Costs - The meaning of the first sentence of the paragraph is not clear. For example, the term "Projects" is difficult to define. Is the intent to limit program costs or project costs? Is the limitation Forest-by-Forest or is it Regional? Is the FY 1989 program budget amount to remain constant or is it adjusted annually for inflation? A suggested reword is as follows: "Annual Regional (Forest) program budget to manage unwanted vegetation will not exceed the Regional (Forest) FY 1989 program budget as adjusted for inflation."

Page II-13, Alternative D, Tool Available, fifth paragraph - Herbicides are available as the last option considered. Without some guidelines this statement may be interpreted differently by different people.

Page II-24, Table II-1 - The acreages presented are likely in thousands of acres, but this is not indicated. The information also seems to come from sources in addition to those cited.

Page II-33, last paragraph - The second sentence is incorrect. The timber program, does not fund much of the engineering and other program activity at the Forest level. It does, however, have a significant impact on these programs. A suggested rewording of this sentence is: "A shift in the allowable sale quantity for a Forest affects its entire budget because much of the engineering, protection (fire), and other program activity at the Forest level is made necessary by the Timber Program."

Page II-33, Table II-7 - This table appears to be a truncation of Table B-8 in Appendix B. In these and similar tables, a note explaining that the values are expressed as changes from the Reference may be needed--if you continued with the "Reference" as a way of expressing Alternative B.

Page II-37, Table II-10 - Acres treated manually are not included in the table.

Page II-48, Table II-7 - This table needs to be reviewed and corrected. Our concerns include: Silviculture--Aerial: Flaggers are not used in this operation; 3-5 monitors may be excessive with only one helicopter and with less than 10 percent of the treatment units requiring monitoring. These routine programs should not require law enforcement personnel.

Why are silviculture operations the only ones requiring monitors? It would be informative to note which positions have likelier contact with herbicides and which are not, such as monitors, law enforcement personnel, and radio technicians?

If similar information for all methods of vegetation the reader could make manpower comparisons.

Page II-54, Step One: Site Analysis - A biological evaluation or a survey for threatened, endangered, and sensitive species should be included as part of the site analysis.

Page II-54, Step One: Site Analysis - This discussion should state that projects to be analyzed must tie to the forest plan. The first step is to insure that the proposed project is consistent with the forest plan and that it meets the standards and guidelines. If it is not consistent, the project must be either modified or discarded or the forest plan must be amended to accommodate the project. The determination of consistency must be documented as a part of the project analysis.

Page II-82, 6. 3) - Orienting nozzles into the air stream will produce, not minimize, fine droplets. The correct nozzle orientation is with the air stream.

Page II-82, 7. a. and b. - Why are buffer widths greater for wetlands and lakes than they are for Class I streams?

Page II-86, Figure II-10 and elsewhere - It is not clear how Alternatives A, B, and G have a reduction in emissions when they burn a greater acreage than was burned in 1986 (Page III-10). The material on and following page IV-31 does not offer an clear explanation.

## Chapter III

Pages III-20 and 21, Water - This section states that domestic watershed agreements with municipalities contain specific restrictions. It does not identify if any are designated as "sole source aquifers." These watersheds also have specific restrictions on activities which may occur within their boundaries.

Page III-30, Background, fourth paragraph - It is over-grazing, not grazing per se, that provide sites for noxious weeds. We suggest substituting "over-grazed areas" in place of "grazing".

Pages III-33 and 36, Current Conditions - A statement that the Regional Forester's list is available upon request should be included, (as was done in Chapter IV.)

Pages III-42 to 44, Rights-of-Way Maintenance -

a) The term "open-to-the public roads" has two different meanings. The most obvious meaning is that they are roads which are not gated or otherwise closed to public entry. The other meaning is that they are roads which are maintained in a condition which is passable in a standard four-wheel passenger car. This second definition is used to determine its applicability to the Highway Safety Act. Approximately 50 percent of Service-wide road mileage falls between these two definitions. That is, they are open for the public to use with high clearance vehicles but are not subject to the requirements of the Highway Safety Act. We are not sure which definition is intended to apply to the text in paragraph two. This could also be confusing to the public. We suggest that this paragraph be rewritten to clarify this issue.

b) The reference in the third paragraph that the "road maintenance budget has decreased more than 36 percent over the past five years" should also be rewritten to identify the specific 5-year period. For example, R-6 road maintenance allocations decreased 36+ percent between FY 1981 and FY 1986 while they only decreased 28+ percent between FY 1982 and FY 1987. Also, a reference to declining buying power of the dollar between the years in question may also be appropriate.

c) The discussion in the second and third paragraphs points out that the Region has not been able to adequately maintain roadside vegetation. It cites a funding shortfall and the injunction against herbicide use as the primary reasons. It does not quantify the effect of each. This information may be useful in analyzing the various alternatives. Also, it may be appropriate to discuss the effect the injunction has had on County, State, and Federal highways.

d) The last paragraph under "Highways" describes the roadside vegetation management program. However, as written, it implies that it only applies to "Highways" and not to "Forest Service Roads." Actually, it is valid for both. We suggest that this paragraph be used as an introduction to this section. We also suggest that the word "increased" in the second paragraph be deleted. Unless a point of reference is established, it is not possible to determine the amount of increase.

e) As presently organized, this section implies that "Forest Service Roads" and "Highways" have different roadside vegetation management requirements. Actually, they are very similar. We suggest that the heading for this section be changed to "Roads and Highways" with a subsection for "Forest Service Roads" and another for "County, State, and Federal Highways".

Page III-47, Herbicide Use - The wording of the first sentence of the second paragraph should be changed to clarify that the 16 herbicides were used prior to the 1982 injunction. Table III-6 is clear on this issue, but the narrative that "sixteen herbicides have recently been used" causes confusion. We also suggest that "prior to 1982" be added to the first sentence following Table III-6.

This section discusses the historical program for rights-of-way maintenance in terms of thousands of acres. Table IV-7 on page IV-19 describes the various alternatives for this program in terms of thousands of miles. It may be helpful to describe both of these references in the same units of measure.

#### Chapter IV

Page IV-2, last paragraph in "site-specific" section - "When . . . the action might significantly affect . . . " Also, this section needs to discuss the process of "tiering" (40 CFR 1508.28) and how it would apply here.

Page IV-7, last paragraph in "uncertain data" section - Include in the paragraph mention that 1502.22 applies only when the effects are "reasonably foreseeable significant adverse impacts."



Page IV-10, first full paragraph - This is the type of discussion which should be made for pesticides as well to explicitly present the rationale required in 1502.22(b).

Page IV-21, Conclusion - What happens to the 90% intercepted by foliage? You'll need to explain what happens to it so that it does not affect soil in the short and long run, (if it has no effect).

Page IV-22, first lines - What evidence or examples of synergistic effects are referred to here? The previous discussion dealt only with accumulation.

Page IV-26, Table IV-10 - The terms used to express mobility need to be defined. What is meant by "low," "medium," and "high"?

Page IV-29, Table IV-11 - Review this table for clarity and consistency with other tables. It seems at odds with Figure II-10. The relationship between the 1971-1986 average and "Ref." is not clear. It uses a different average base than Figure IV-2, which uses the average from 1977-1986.

Page IV-48, Cumulative and Synergistic Effects, fifth paragraph - The paragraph concerning cumulative effects of herbicide residues in surface waters can also note that of the 0.2 percent of NFS lands treated with herbicides, approximately 10 percent of those acres are adjacent to water.

Page IV-60, Noxious Weeds, second paragraph, fifth line - Delete the "the".

Page IV-62, Threatened, Endangered, and Sensitive Plant Species - The document as written does not make it clear that Section 7 of the Endangered Species Act has been complied with. It should be specified that the U. S. Fish and Wildlife Service was contacted and concurs that there will be no "effect" from the proposed actions. It should be emphasized that site-specific biological evaluations will be completed prior to any treatment. Region 4's EIS for Noxious Weed/Poisonous Plant Treatment Program included wording that will accomplish that.

Page IV-85 ff., Human Health Effects - The DEIS could have benefited from more explicit ties between this section and Appendices D and H. A discussion of the role of the LAI study (appearing as Appendix D) in this DEIS will explain the presence of the Appendix, and appropriate references to it will integrate the appendices and the main chapters better.

Page IV-85, Overview of Risk Characterization - This discussion should note that the scientific information available was adequate for the scientists at EPA and their independent Scientific Advisory Panels in the pesticide registration process in this country, and for many of these herbicides, the information was adequate for scientists in the Canadian registration process.

The EPA rating or characterization of the 16 herbicides would be an informative piece of background information for the additional analysis reported here.

The court's charge to us for further analysis could be explained in greater detail here also. This would help the reader understand the context of this section.

Page IV-85, last line - Where are the "new or previously unreferenced studies" referenced? A separate listing, or notation by asterisk in the References, would be informative.

Page IV-86, first lines - How did the University of Washington team update the LAI data? Were changes made to Appendix D? How were the LAI Toxicity data updated?

Page IV-88, Dose Response Assessment, fourth paragraph - This discussion should point out that the lowest LD-50's and NOEL's in the literature were used in the risk assessment.

Page IV-90, Table IV-17, footnote - Two herbicides are not aerially sprayed, yet values are entered in the table.

Page IV-91, second paragraph - Public exposure was calculated in Appendix D by drinking one "liter" of water, not "quart" as stated here.

Page IV-93, first line, and elsewhere in the DEIS - "LOEL" and "NOEL" are not defined in any place convenient for the reader. (They are also not in the Glossary). Defining them as they first appear in section and in the Glossary would help readers.

Page IV-93, second and third paragraphs (and elsewhere in the Human Health section) - "No observable effect" and "any observable damage" would be preferable and more accurate than "no significant effect" and "any significant damage".

Care must be taken to distinguish between "statistical significance" and "significance". In a NEPA document, "significance" is likely to assume the meanings of "significantly" (40 CFR 1508.27); a very different idea than statistical significance.

Page IV-94, Risk Characterization - Has the semi-quantitative method for comparing hazards proposed by Ames, et al., received scientific review or comment? The method and the calculated LOEL HERP's as used here need a fuller explanation (probably in Appendix H.) Explicit reference to them should be made here.

Page IV-94 last sentence of Risk Characterization - The list of HERP's and additional information about them was not located in Appendix H.

IV-94 - IV-100, Summary of Epidemiology - One reviewer questioned the appropriateness of this section, given that other bodies of information are not similarly summarized. Referring readers to other specific places where other types of studies are summarized, or moving this section to an Appendix, would create a more balanced presentation of the whole range of evidence.

Page IV-96, Conclusions - Is this conclusion logical? Tests show TCDD to be carcinogenic. Why should phenoxys not containing TCDD be tarred with the same brush?



Page IV-96-100, Which "phenoxys" were studied? There are lots of phenoxys, some which may contain some level of TCDD and which which do not. Should not the ones which have no TCDD be evaluated separately?

Page IV-110, Lifetime Worst Case . . . , first paragraph - "The higher the HERP, the higher the hazard." Can more information be provided so that the reader can compare this hazard to other hazards and risks? And, as noted in the comment on IV-94, the information in Appendix H was not locatable.

Page IV-111, Summary by Herbicide - For all herbicides, the toxicity is stated as "low", "fairly low", "moderately high", etc. What do these words mean; what are they compared to? Explicit reference to the numerical basis for these characterizations, or comparison to other risks, would add important information here.

For example, in the Atrazine summary it is stated that Atrazine has a high cancer hazard compared to the other 15 herbicides. How much of a hazard would our use of Atrazine be to our workers and the public? Its hazard relative to the other 15 herbicides is useful information, but its hazard relative to other risks (and the extent these risks are comparable) would also be important.

Page IV-135, Figure IV-11 (Also Summary, page 18, Figure S-5) - How is the "Index for Risks" calculated? What is the definition? The only statement is that as more acres are treated risk increases.

The discussion should distinguish between aggregate and personal risk. If the same crew treats more acreage, individual risk can increase from the additional exposure. If the additional acres are spread over the region, other crews would likely be used and individual risk would remain the same. Chances for accidents would increase but individual risk would not.

#### Appendix B

Page B-9, Table B-2 - The columns in this table need to be identified.

#### Appendix D

Section 3, Page 14a, Table 3-3 - The names of the herbicides are missing.

Section 5, Tables - You may wish to add explanations of the scientific notation used to express risk for  $10^{-3}$  and the other levels not explained in footnote "b" of Table 5-12.

Section 5, Page 28b, Table 5-15 - The average annual risk per capita is missing.

Section 5, Page 31a, Table 5-16 - The title is in error. The toxicity of mixtures is compared with the toxicity of single components.

In the same table, indicate if the same, or different, animal species and route of application were used for both mixtures and single components.

#### Appendix G

Page G-8, Range Improvement Activities, first paragraph, sixth line - Suggest deleting "increased livestock production," since it is not currently an objective, but substitute "increased range vegetation diversity," which is.

#### Appendix H

Section 1, Qualitative Risk Assessment - The references cited in this section are not listed.

Sections 2 through 6 - These sections should be reviewed for completeness, for a consistent format, and for useful summaries of the detailed information. An overall summary of the five sections, like that for Section 2 on H-10 (first paragraph) would be very informative, and should perhaps be added to the main body of the EIS. We also recommend a short summary be provided after each section of information. For example in section 3 make a statement that the compound is (1) mutagenic, (2) a suspected carcinogen or (3) the information is not conclusive.

Several ranking systems were used for evaluation of effects. Describe the systems, their source, or the basis used in developing them. An example is in Appendix D, page 3-5.

Any acronym should be spelled out when appearing for the first time in the text. Also, acronyms should be included in the glossary. Many are from very specific fields and very time consuming to find in the text.

The legend to the graphs and tables that occupy more than one page should be given on the first page, e.g., tables start on pg. H-12 but the legend does not appear until pg. H-30.

Do not leave empty columns in the tables. Include a descriptive phrase or abbreviation such as "information not available", "study not completed", etc.

Section 2, Tables - The NOEL doses are reported on each compound in different animals under different conditions. Indicating that NOEL's used in the risk assessment are listed in appendix D, section 3, pg. 7a will help speed orientation.

Section 4, Page H-92 - The ranking scores for developmental effects presented on page H-92 (last paragraph) are not presented in the following tables.

Section 6 - This section contains epidemiology information concerning the herbicides. Why was this information not rated for adequacy as were the other types of studies? For many of the studies, critical reviews have been completed and documented. There should be discussion of these to put the value of these studies into proper perspective.

Section 6, Page H-124 - Human exposure to phenoxy acids is discussed; on page H-124 the symptoms of chloracne are reported. This means the workers were exposed to other compounds from the group beside 2,4-D such as 2,4,5-T and

others. The workers are exposed to technical grade compounds which contain impurities.

For phenoxy acid herbicides, it would help to discuss the effects of impurities such as dibenzodioxins and dibenzofurans. Your information on pg. IV-95 (top lines) does not take the discussion far enough. To use the toxicological information on mixtures for comparison with single compounds is confusing for the reader and may lead to invalid conclusions. This mixed information should be used with great care in the risk evaluation, and should be deleted or more completely presented.

#### Comments from Wildlife and Fisheries

The following comments were received from the Wildlife and Fisheries Staff, and pose some interesting potential approaches for the analysis.

We have reviewed the R-6 DEIS, concentrating primarily on the parts pertaining to wildlife diversity, threatened and endangered species, and fisheries. The DEIS describes very well the situation in R-6. It adequately reviews the potential effects of the different methods of treatment on the habitat and on the species themselves. It points out the general relationships between animals and stages of forest succession and the important considerations relating to the effects of vegetation management on wildlife, fisheries, and threatened or endangered species.

The DEIS could be improved, however, by making it more specific. Management of competing and unwanted vegetation usually occurs in the very early stages of succession (1-8 years) following fire or clearcutting. Thus, there are many plants and animals (those that occur in later successional stages) that will not be affected by vegetation management. Why not use the wildlife habitat relationships guidelines to indicate species or groups of species that are likely to be affected and those that will not? Also, the general nature of the effect could be indicated.

In addition, there is an opportunity to be even more informative and to integrate with timber/silviculture. In Appendix A, the effects of vegetation management on timber production are analyzed by six broad forest types. A similar analysis could be done by each forest type to show likely effects on wildlife with emphasis on those species that use the early successional stages. Also, the same analysis or broad forest types could be used to show the impacts on particular threatened, endangered, and sensitive plants and animals. The draft document could be more specific about these species. If we concentrate on species that occur in early successional stages, and if we use the same six forest types for analysis, the DEIS would be much more informative. For example, in the Douglas-fir/tanoak/madrone types (page A26), which wildlife species and sensitive plants and animals are likely to be affected by vegetation management and how?

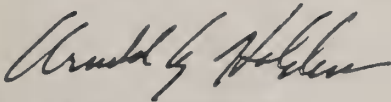
Answering these or similar questions for each of the six forest types would give the reader a much better idea of the likely effects of vegetation management and would result in a much more defensible document. In some forest types and vegetation, management would be beneficial, in others, no impact or detrimental impacts might occur. The DEIS clearly and correctly states that the effects on wildlife and threatened species are analyzed project by project. But the reader has no basis for evaluating what is likely to happen to these species.

The DEIS could be much more positive about managing vegetation for wildlife and endangered species, and the value of managing for these species. In many cases, forbs and grasses are being introduced to provide forage. This is an important wildlife program on R-6 Forests. Control of competing or unwanted vegetation is needed to accomplish the introduction of these forage species. An important result of introducing these species may be the control of less desirable (unwanted) shrubs and forbs. On productive sites in the coastal mountains of Oregon, for example, vegetation management to control the rate of succession in the first 5-10 years after site preparation might increase the amount of browse available to deer and elk. Thus, both timber and wildlife objectives are met. Also, in some cases, vegetation management will be needed to provide for threatened or endangered species.

It appears that the economic and social evaluation was based only on timber production and its effect on the economy. Vegetation management that is being done primarily for wildlife habitat improvement or that incidentally enhances wildlife habitat also has a positive economic effect. An estimate of the value of vegetation management for wildlife habitat improvement should be included in the assessment.

Thank you for this opportunity to review and comment on this important document.

We hope these comments are helpful to you in preparing the Final EIS. Again, it is a well prepared DEIS. The excellence in the Draft bodes well for the Final. Call us if we can help in any way.



For DAVID E. KETCHAM  
Director  
Environmental Coordination

cc: Director, WL&F, LMP, Eng, Rng, FPM, TM



The Applegate District has reviewed your DEIS for Managing Competing and Unwanted Vegetation. You are to be complimented, we believe that by far this is the best to come down the pike. We were especially glad to see that you are attempting to deal with the environmental community in a positive way. This has been missing in past EIS documents, and we feel it is about time that the problem was dealt with in a realistic manner.

After reviewing the document summary we would like to make the following points.

1. We do not feel that any of your "preferred alternatives" should be the final selected alternative. We believe that each of the three has a "fatal flaw".

We believe that alternative B really does not address the environmental concerns of the public. It is the same old preferred alternative that we have always selected and told the public "Don't worry now, father knows best!" We don't think that the rapport you and the Forest Service have developed with the environmental community can be maintained if you select this alternative. It would be seen as a slap in the face by the environmental groups. Sort of, Well, you listened to all of our concerns, incorporated them in your document, and then ignored them when you made your final decision.

IN THE PAST OUR PHILOSOPHY HAS BEEN "USE HERBICIDES UNLESS THERE IS A COMPELLING REASON NOT TO". OUR PHILOSOPHY FROM THIS DOCUMENT SHOULD BE "USE OTHER METHODS UNLESS THERE IS A COMPELLING REASON TO USE CHEMICALS"

Alternative D is probably too conservative. The emphasis here should be to use other than chemical methods **FIRST**, then if they aren't reasonable fall back on the chemicals. First of all, there are many methods, such as stem injection for instance, that offer very little environmental concern and should not have to be considered as a last resort. We see a big difference between a compelling reason and a last resort. We feel that one of the biggest problems with this alternative is in the Time for Action Sequence. If the objective here is to truly reduce the use of chemicals as well as other methods, then action will have to be taken in advance before any clear sign of potentially significant damage is evident, because by then it is too late and in many cases, chemicals will be the only realistic alternative. The action will have to be taken on **ANTICIPATED** problems if we are going to try to rely on natural processes, ie sow grass to help combat anticipated brush problems, don't burn to keep from stratifying Ceanothus seed etc.

Alternative E probably treats the right amount of acres, uses the right amount of chemicals, etc. But the restrictions on the use of herbicides is really unrealistic. There are areas where aerial application is not only reasonable, but the **only** reasonable alternative. These are areas where the brush is high and dense and the trees are small. In such cases, cutting the brush would bury the trees under the slash and



using a chain saw under such circumstances is very unsafe, while ground spraying would be impossible due to the height of the brush. Stem injection is also generally impractical given the tremendous number of stems. We would also hate to lose the use of 2,4-D. In the Forest communities of the Applegate, there are situations when dealing with ponderosa pine where we really don't have a substitute chemical.

One concern we have had when aerially applying 2,4-D, is that we encounter some volatilization even when applied according to the label. Although we have never had any problems, some could develop if we treated a large application area in a relatively small drainage. We would suggest that consideration be given to limiting the amount of acres that could be treated in a sensitive drainage in any 24 hour period.

Incidentally, our experience has been that we have more control and better application with less spills and water contamination with aerial rather than ground application. The problems with ground application have been in the control of the contracting crews, i.e. spilling chemical on their shoes then walking in the creek, containers of chemical falling over in the back of the rig and spilling out over several miles of road, applicators drinking from creeks with chemical on hands and faces, etc.

2. We think that the wording needs to be changed when the specific measures to be implemented if herbicides are used are finalized. The statement is made that spray droplet size will be optimized to minimize drift. Our concern is that if just drift is considered then substantial reductions in control may be traded off that will result in multiple treatments on an area instead of just one. We would suggest adding something like optimized to minimize drift on sensitive and controversial areas.
3. As you may know, the Rogue River National Forest visits each area that vegetation control is contemplated and does a mini EA on that unit. This year we tried to use the philosophy stated earlier, i.e. use herbicides only if there was a compelling reason. We were surprised to find that aerial application actually fell out on the really tough units. But more important we found that cost or PNV actually had very little effect on the final alternative, and a doubling of the cost didn't really totally change the picture on really sensitive areas. We make this comment because in your presentation to the forest management team you made the comment that a 10% cost differential might be considered as sufficient to determine whether to use chemicals or other methods. Our experience is that there are so many other factors to consider that a 10% difference isn't enough to change the balance.
4. In reviewing your figure S-7 of the Summary, alternative E appears not to be shown in the proper location if indeed the risk factor is 242.
5. There is concern not only here on the District, but in Southern Oregon as a whole that we were sold out by the rest of the Region. The figures and the facts do not in any way portray the situation as it now exists.

here on the Applegate. By lumping the Region together, one may get the impression that there would be very little impact if the Region were to stop using chemicals. Regionally that may be true, but locally we could not meet our land stewardship responsibilities without a vegetation control program!

In summary, The District would like an alternative close to alternative E, but with the freedom to use **ALL** methods of control and all chemicals if there are compelling reasons for the use a particular method or chemical.

We would like to thank you for the opportunity to respond and we appreciate your taking the time to consider our response. Again, we compliment you on your work to this point and we will celebrate with you when this project is finally finished!

WILLIAM R. WARNER

District Silviculturist

Address: **U. S. FOREST SERVICE**  
**STAR RANGER STATION**  
**6941 UPPER APPLGATE RD.,**  
**JACKSONVILLE OREGON 97830**

United States  
Department of  
Agriculture

Forest  
Service

Pomeroy  
Ranger  
District

Route 1, Box 53-F  
Pomeroy, WA 99347

1950

January 27, 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

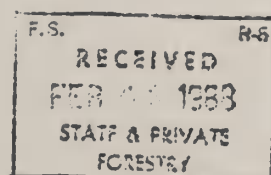
This input to the Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation is a consolidation of concerns expressed by employees of the Pomeroy Ranger District on the Umatilla National Forest.

The Pomeroy Ranger District has a variety of undesirable (noxious weeds) vegetation. Some of which are Yellow Starthistle, Diffuse Knapweed, Dalmation Toadflax, Scotch Thistle, and Canada Thistle. To control these and other noxious weeds we (the District) employ preventative methods where-ever possible. An example of one such method is seeding disturbed areas with desirable species but preventative methods are not fully effective. Thus corrective actions become essential.

To treat the increase in noxious weeds we need to research and choose the best tool available to fit the situation. As the tools available are restricted so may our ability to take effective corrective action be restricted especially in today's lean budgets. Herbicides and aerial application are some of these tools.

In some cases, if herbicides are to be used, aerial application is the only economical method to apply the chemical within the time frame necessary for it to be effective. Any alternative which eliminates or greatly restricts the use of aerial application will no doubt result in unacceptable land management conditions (eg. Alternative E).

If we are not able to control or restrict the spread of some noxious weeds some of the long term effects could be a significant reduction of available forage for big game and domestic livestock on the District. It may also reduce nesting areas for some ground nesting birds.



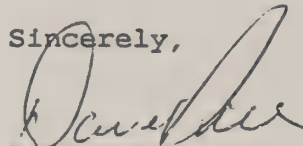
# I/B Public Participation and Consultation

We are presently receiving criticism and will continue to receive criticism from adjacent land owners if we are not able to treat noxious weeds. The adjacent land owners are treating their land to control noxious weeds yet we (Forest Service) can't effectively treat the weeds on our land thus providing a seed source to re-infect their land.

We also believe it would be beneficial to have herbicides available as one of our silvicultural tools, especially in the reforestation process. Under some conditions, chemical treatment of undesirable vegetation appears to be biologically, economically and environmentally the most favorable alternative.

The alternative selected must allow the use of all the tools of the trade for treating undesirable vegetation. This includes herbicides and aerial application. We believe that Alternative B meets these needs best and provides satisfactory protection for the environment and human safety.

Sincerely,



DAVE PRICE  
District Ranger

001016

## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

*No comments - outside our jurisdictional area.*

*Ronald F. Schultz*

*State Biologist*

*11-6-87*



*Soil Conserv. Svc.  
State Conservationist  
2121-C, 2nd St -  
Davis, CA 95616*



## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

We as Board Members of S.C.S. have several comments to your D.F.T.S. on Managing Competing and unwanted vegetation. We would like to see all agencies and govern units be good stewards of the land. The indiscriminate use of herbicides can have long lasting negative impacts on the land. In the past the use of herbicides have been used because it was the easiest and cheapest way to grow fiber. We believe that if herbicides would help in reducing the present rate of infestation of noxious weeds, that you should be allowed to use this tool, only after you have eliminated all other methods. It would have made more sense to evaluate the noxious weed problem separately from the silvicultural prescriptions. Without the use of herbicides it is impossible for all Federal Agencies to live up to the intent of the Carlson-Foley Act (43 U.S.C. § 241 et seq.) or the Federal Noxious Weed Control Act of 1974 (7 U.S.C. § 2801 et seq.) For these reason we choose alt D.

John Sweetman - Chairman FCD

L. Brown

001071



United States  
Department of  
Agriculture

Soil  
Conservation  
Service

W. 920 Riverside, Rm. 360  
Spokane, Washington 99201-1080

February 2, 1988

Mr. Gary Larson  
Vegetation Management Group Leader  
USDA-Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, Oregon 97208

Dear Mr. Larson:

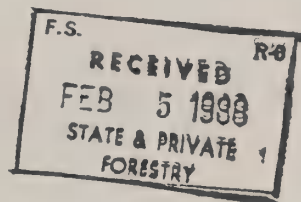
We have reviewed the draft environmental impact statement for Managing Competing and Unwanted Vegetation. The concerns of the Soil Conservation Service in Washington State are centered on soil erosion and sediment transport as they affect water quality for all land uses. This document does reflect the U.S. Forest Service's commitment to addressing those concerns as they relate to the public forests. The planned interactions between the vegetation management program and the silvicultural activities related to the overall forest management plans have been well brought out in the DEIS.

Thank you for this opportunity to comment on your document.

Sincerely,

*Lynn A. Brown (acting)*

LYNN A. BROWN  
State Conservationist



The Soil Conservation Service  
is an agency of the  
United States Department of Agriculture



★ U.S. Government Printing Office: 1983-429-639/1578

# I/B Public Participation and Consultation



REPLY TO  
ATTENTION OF:

DEPARTMENT OF THE ARMY  
NORTH PACIFIC DIVISION, CORPS OF ENGINEERS  
P.O. BOX 2870  
PORTLAND, OREGON 97208-2870

000901

January 13, 1988

Environmental Resources Branch

Mr. James F. Torrence  
Regional Forester  
Pacific Northwest Region  
319 S.W. Pine, Box 3623  
Portland, Oregon 97208

Dear Mr. Torrence:

We have reviewed your Draft Environmental Impact Statement (DEIS) for Managing Competing and Unwanted Vegetation and have no comments with regards to hydropower, navigation or regulatory activities. We do remain somewhat concerned, however, regarding our flood control responsibilities.

We recognize that the various proposed management concepts ultimately must deal with vegetation that occurs near watercourses. We are concerned that altering of watershed vegetation components could increase surface runoff and have direct impacts on flood peaks and siltation in the lower river reaches. It is suggested that the DEIS recognize this as a potential problem and also include a discussion of what measures will be taken to insure that any increased runoff is kept to an absolute minimum.

We appreciate the opportunity to review and comment on this document.

Sincerely,

A handwritten signature in cursive script, reading "James R. Fry", is written over a horizontal line.

James R. Fry  
Colonel, Corps of Engineers  
Deputy Division Engineer

U.S. ENVIRONMENTAL PROTECTION AGENCY  
REGION 10  
1200 SIXTH AVENUE  
SEATTLE, WASHINGTON 98101

001228



FEB 12 1988

*Coop  
Agency*

REPLY TO  
ATTN OF:

WD-136

James Torrence  
Regional Forester  
Pacific Northwest Region  
P.O. Box 3623  
Portland, Oregon 97208

Dear Mr. Torrence:

In accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act, we have completed a review of the Draft Environmental Impact Statement (DEIS) for Managing Competing and Unwanted Vegetation. The DEIS evaluates seven alternatives with different levels of vegetation control which include biological, prescribed burning, manual, mechanical, and herbicide methods. The DEIS covers the 19 national forests in Washington and Oregon.

From the standpoint of human health risks from herbicide application, we consider the DEIS to be exceptionally complete. With such a state-of-the-art effort, there is little we can add from our particular fields of expertise, and we essentially have no substantive technical comments.

Based on our review, we have rated the DEIS EC-2 (Environmental Concerns - Insufficient Information). This rating was based on the following factors:

1. The DEIS underestimated the air quality effects of prescribed burning at residences located immediately downwind of fires.
2. The reference alternative did not include quantification such that all of the alternatives could be adequately compared.
3. The level of effort in evaluation of environmental risk from herbicide use should be made more comparable to the high quality effort that was done in evaluating human health effects.

We were pleased to be able to assist in the EIS preparation process through data acquisition and pre-DEIS reviews. The details of this review are included in the enclosed review report. Should you have any questions as you develop your strategy for completing the Final Environmental Impact Statement, please contact Wayne Elson at (FTS) 399-1463.

Sincerely,

A handwritten signature in dark ink, appearing to read "Robert S. Burd".

Robert S. Burd  
Director, Water Division

Enclosure

U.S. ENVIRONMENTAL PROTECTION AGENCY  
COMMENTS ON THE  
DRAFT ENVIRONMENTAL IMPACT STATEMENT FOR  
MANAGING COMPETING AND UNWANTED VEGETATION

GENERAL COMMENTS

The DEIS appears to address air quality impacts in National Ambient Air Quality Standards (NAAQS) terms for areas currently designated as "protected" under provisions of the smoke management program(s). As these programs become more effective in keeping slash plumes away from "protected" population centers, they also "send" them in a much more concentrated fashion through the "unprotected" burn corridors where a much smaller, but no less significant portion of the population resides. Given the foregoing, the DEIS's focus on occupational types of exposures (forest personnel) to near-burn impacts overlooks impacts on the resident and/or transient (people visiting the forest) populations.

Also, the DEIS's treatment of total slash burn emission reductions, while perhaps germane to the visibility program, do not in themselves represent any substantial mitigation of the sometimes intense close-in NAAQS impacts any individual burn can generate.

The use of one of the alternatives as a reference implies that the effects of the reference alternative are the desired effects of managing the Pacific Northwest national forests and that the other alternatives should be evaluated with respect to their deviations from this reference. Quantitative data is often lacking for this reference (see Figures II-3 and II-10 for example). It is difficult to evaluate the significance of the alternatives when the reference is not quantified. The significance of the differences between the alternatives can only be judged in the context of quantitative measures. The discussion of the "Reference" in Chapter 4 (pages IV-3 to IV-6) would be acceptable as long as the specific, quantitative information regarding this "Reference" is provided in the DEIS for comparison with the other alternatives. The Final Environmental Impact Statement (FEIS), therefore, needs to be revised to replace all entries of "Reference" with quantitative measures.

The environment receives the greatest share of the dose from herbicides and therefore receives the greatest likelihood of incurring a subsequent and corresponding environmental risk. The DEIS does make efforts to address environmental risk, but they are dwarfed by the attention given to human health. We realize that this focus is due to public concerns and the responses received during scoping. We believe it would be appropriate to increase the depth of analysis of risks to the environment.



## SPECIFIC COMMENTS

- I-1        The introduction states that "The forester, like the farmer and gardener, has to cope with unwanted plants..." The FEIS should make it clearer that designating certain plant species as "competing", and "unwanted" arises because certain national forest land is managed for certain purposes like timber production. In natural forest ecosystems such terms would not be necessary.
- II-57      Prevention and correction are listed among the four general strategies for vegetation management. How advanced is the "state of the art" in prevention vs correction strategies? Do expected future advances in the "state of the art" significantly affect use of these strategies?
- II-61      Monitoring is listed as one of the implementation steps. The DEIS states that, "Most monitoring is done immediately after project completion." To be most effective monitoring should be done before, during, and after the project. We would suggest more detail in the description of monitoring for each for the five general methods of managing competing and unwanted vegetation and how the information generated in monitoring will be used to make any needed changes. An example for each method would be helpful.
- II-71      We note that monitoring is not included in biological and prescribed burning mitigation measures, but is included for herbicide mitigation measures. This should be corrected.
- III-11 to  
III-20      This section on air quality needs to be better organized. The subjects are not grouped and certain paragraphs appear out of context. For example, the fourth paragraph on page III-18 and the third paragraph on page III-19.
- III-14      The discussion of the prevention of significant deterioration (PSD) provisions of the Clean Air Act is incorrect. From Part C of the Act (sections 160 through 169) and EPA regulations (40 CFR Part 51.166) emissions from forestry burning are subject to the PSD program. However, under the Act and EPA regulations, forestry burning is not subject to PSD permit requirements since each burn is considered a temporary source (see section 165 of the Act and 40 CFR 51.166(i)). Furthermore, the state of Washington has not adopted a program which satisfies the Act's requirements for PSD, but rather has only adopted the permit provisions. EPA has been unable to approve the Washington PSD program because it fails to satisfy all of the requirements of the Act. Oregon, which has a completely approved PSD program, correctly regulates forestry burning emissions under the program, however, even there, individual burns are not subject to the PSD permit requirements.
- III-19,  
III-20      The discussions of the NAAQS for particulate matter need to be updated to reflect the new PM<sub>10</sub> standards which EPA promulgated on July 1, 1987 (52 FR 24634).
- III-38      Cooperation with tribes and the Northwest Power Planning Council should be included.

- IV-28 The FEIS should discuss the implications of USFS fire fighting policies on both the management of this competing and unwanted vegetation, and mitigatable emissions from forest fires. This discussion should address the formulation of decisions made by forest managers on where to construct firebreaks to control the spread of wildfires. Are wildfires ever allowed to burn for vegetation control?
- IV-32 to IV-38 The analysis of particulate emissions needs to be done for PM<sub>10</sub> and total suspended particulate (TSP) emissions as well as for PM<sub>2.5</sub> emissions. Particulate matter less than 2.5 microns in size is not currently directly regulated under the NAAQS. Rather the health and welfare based ambient standards are specified in terms of particulate matter less than 10 microns in size while the statutory PSD increments are specified in terms of total suspended particulates. The FEIS should present the effects upon ambient air quality in terms of emissions of the regulated pollutants PM<sub>10</sub> and TSP. Since the effects of smoke on visibility is strongly dependent upon the concentration of particulate matter less than 2.5 microns in size, it is appropriate to compare the PM<sub>2.5</sub> emissions of the alternatives to evaluate the effects on visibility.
- IV-36 The DEIS references 17 herbicide spills that have occurred with three into water. Were there any adverse effects from these spills? A short description of the effects of these spills would help to understand credible accident scenerios.
- IV-37 Evidence that prescribed burning reduces wildfires is provided here (a total of 44% of wildfires occurring on DNR-protected lands involved logged units with untreated slash). How were these wildfires started? This section should be expanded. Further, the source of estimates found in Table IV-12 should be referenced and given expanded narrative treatment.
- IV-38 The discussion of PSD baseline periods is incorrect. The PSD baseline concentrations and baseline emissions for all pollutants were established for all of Oregon (both eastern and western) by an Oregon Department of Environmental Quality regulation (OAR 340-20-225(2)) as calendar year 1978. Emissions increases and decreases after January 1, 1978, count against the available PSD increments. The PSD baseline concentrations and baseline emissions for TSP have been established for much of eastern and western Washington, on an Air Quality Control Region (AQCR) basis as follows:

Olympic-Northwest Washington Intrastate	6/8/81
Northern Washington Intrastate	3/23/79
Eastern Washington-Northern Idaho Interstate (Washington portion)	8/16/78
South Central Washington Intrastate	12/14/77

Emissions increases and decreases after these dates count against the available PSD increments. Note that for the remaining 2 AQCR's (Puget Sound Intrastate and the Washington portion of the Portland Interstate), the PSD baseline date for TSP has not yet been triggered and emissions increases and decreases do not count against PSD increment consumption. It is important to recognize that increment consumption is determined by changes in ambient air quality in the area of concern (statewide for Oregon, certain AQCR's for Washington). The location of the source of emissions is not important.

As such, emissions from sources in Washington can and will consume available PSD increment in Oregon (and vice versa) and emissions from sources in one Washington AQCR can and will consume available PSD increment in another AQCR. This is especially true for sources with significant transport of emissions such as prescribed burning.

- IV-39 The discussion of visibility impacts from prescribed burning in eastern Washington and Oregon is incorrect. The distribution and frequency of prescribed fires in relation to the mandatory federal Class I areas are an important factor. The fact that total area-wide emissions will decrease under all alternatives does not, in and of itself, ensure that visibility cannot be adversely impacted. Increases in prescribed burning activity in certain locations, increases in the frequency of burns, changes in the time of year burning occurs, and changes in the type of burns, all could adversely impact visibility in a specific Class I area, even if area-wide emissions decrease. The FEIS must address in more detail the potential impacts upon visibility in the eastern Washington and Oregon Class I areas that could result from prescribed burning under the different alternatives.
- IV-39, IV-40 The term "hydrocarbons", used several times should be changed to the term "volatile organic compounds". EPA no longer regulates "hydrocarbons" as an air pollutant but does regulate "volatile organic compounds" as a precursor to ozone formation.
- IV-41 We are not familiar with the 1978 Geomet, Inc., report referenced in the discussion of air toxics effects. Statements such as "The concentration of toxic compounds downwind of the fire is probably too low to cause measurable health effects" are difficult to accept given the ambient particulate loadings referenced above. This section should be expanded substantially to reflect detailed treatments of all acute and chronic effects posed by compounds or classes or compounds commonly generated in slash burns, both those treated with pesticides and those that are not.
- IV-43 The statement, "All alternatives involving use of herbicides require unsprayed buffers of vegetation to be left adjacent to live streams, lakes and wetlands. Therefore, effects on stream temperature and channel stability due to loss of riparian vegetation are not expected." Rains, human errors, and spills could cause adverse effects. What about the aquatic and avian biological consequences?
- IV-69 The DEIS states "Since these chemicals are soluble in water (and not in fat), they do not tend to accumulate in the bodies of animals exposed to them." The "not" is too absolute, for it can imply that they are not at all fat soluble, which is technically inaccurate. The DEIS has already correctly pointed out on pages IV-26 and IV-27 that the solubility in water of atrazine, simazine, and tebuthiuron is "low." These substances are therefore at least partially fat soluble.
- IV-72 Regarding fish populations, the FEIS should better explain why "Concentrations would be of short duration." What about pond, lake or wetland spills?



- IV-73 The DEIS indicates that trout and salmon and in particular juveniles and fry are sensitive to pollutants. Are there any particular implications in the Pacific Northwest (e.g. time of year of spraying)? What are the effects especially in light of assumptions on humans eating fish containing herbicide (Appendix D, Human Health Risk Assessment, Section 4, page 24)?
- IV-120 to IV-122 The risks to human health from prescribed fire is addressed here. The critical assumption is that maximum impacts from slash smoke "upon air quality over population centers" is based on measurements made by the Oregon Department of Environmental Quality (ODEQ) for a measurement program that we oversee. The greatest concentrations of smoke are known to exist over areas which are not "population centers," by which are populated and affected by slash burning. People exposed to much higher concentrations (and possibly a higher frequency and duration of exposure) are obviously at a much higher risk. The FEIS should investigate risks in areas other than "population centers."
- IV-122 The estimated public exposures were based on 24-hour concentrations. However slash smoke impacts tend to be shorter term and not persistent for 24 hours. Health effects of exposures to smoke at higher concentrations for shorter periods of time should be considered.
- IV-121 to IV-124 Recent ambient air quality monitoring studies of prescribed burning in Oregon and Washington have shown that very high particulate matter (both TSP and PM<sub>10</sub>) concentrations can exist at residences which are located immediately downwind of fires. These data must be assessed and the health implications for persons residing in, or visiting areas which are adjacent to national forest lands must be included in the FEIS. The data cited in the DEIS (Oregon 1985 field and slash burning study) only represents the impacts of field and slash burning at certain population centers which were suspected of receiving numerous smoke intrusions each year. The results of this study do not represent the maximum particulate matter concentrations which could result at any location in ambient air where public exposure could occur. These data can be obtained from Jon Schwiess of EPA Region 10's Ambient Monitoring and Analysis Branch (ES-097), telephone (FTS) 399-1690.
- IV-122, IV-123 Maximum measured particulate loading of 83 µg/m<sup>3</sup> TSP and 60 µg/m<sup>3</sup> PM<sub>10</sub> reflect data stemming from an ODEQ study the primary focus of which was to evaluate field burn impacts, with possible contributions from slash burns. These data should not be used as the primary basis from which maximum ambient impacts from slash burns are assessed. The Region has sponsored more recent studies to investigate these impacts from slash burns in both Oregon and Washington, and have found ambient PM<sub>10</sub> concentrations which exceed the level (150 µg/m<sup>3</sup>) of the new PM<sub>10</sub> NAAQS by a substantial margin. While these concentrations were measured close to the burns (50-400 meters), they were taken in settings representative of "ambient" exposures. It is still uncertain whether these results will be interpreted as actual NAAQS violations due to the probabilistic form of the new NAAQS.

IN REPLY REFER TO:

000902



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS  
Branch of Forest Resources Planning  
P.O. Box 3785 - Code 232  
Portland, Oregon 97208

JAN 15 1988

Mr. Gary L. Larsen  
Vegetation Management Group Leader  
Pacific Northwest Region  
USDA Forest Service  
P.O. Box 3623  
Portland, Oregon 97208

Dear Mr. Larsen:

The Bureau of Indian Affairs, Branch of Forest Resources Planning, appreciates the opportunity to comment upon the Draft Environmental Impact Statement (DEIS) on "Managing Competing and Unwanted Vegetation." The report and work behind it appear thorough and appropriate. Our review, centered upon Chapter II, Alternatives; Chapter III, portions of the Environmental Consequences dealing with timber yields, costs/benefits, and riparian values; and Appendices A, B, and E, which address timber, economics, and silviculture. Our comments based upon that review follow.

We prefer Alternative B, where all effective silvicultural tools are available for use in the region. We believe that it best provides for optimal timber yields and regional economy. Since prevention is called for within the alternative, we prefer it over Alternative D, where it appears that the institution of prevention above correction ties the hands of the silvicultural practitioner to remedy existing problems, as well as, decreasing timber yields and revenues. Moreover, Alternative B will not obligate local communities to accept all future plans for vegetation management since timber sales and other forest practices will still provide for public involvement through the environmental review process.

Your DEIS has three of the seven alternatives listed as preferred. It is unclear whether you could live with any of those three, or that you are proposing to consolidate them into an eighth alternative at the time of the decision. It would be more appropriate to recommend one specific alternative, or clarify your position.

It is unclear how effective the alternatives would be in meeting the goals and objectives of individual forest plans. Perhaps additional analysis to measure the probable outcomes on a forest basis would clarify this. Discussion on how the alternatives would be passed along as forest directives and measurable goals would also be helpful.



# I/B Public Participation and Consultation

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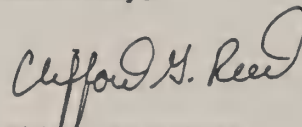
-2-

Splitting out the affects of management without herbicides and without vegetation management was helpful. More discussion is needed within the "without herbicides" section as to the spin-offs of conducting vegetation management with only the remaining methods (e.g., impacts on budget, logistics, and airshed).

The economic affects of the alternatives should be expanded to illustrate the direct, indirect, and tertiary impacts upon revenues, jobs, and economies. We believe these figures would tell a more complete story than merely the bottom line dollar impacts as listed. Impacts upon the timber industry are understated; how will industry and workers be impacted in the various "working-circles" or communities? Discussion of the positive spin-offs to private timber land-owners (including Native Americans) of reduced timber yields on federal lands is lacking.

The Timber Analysis appendix is well done and clearly states the assumptions and foot work of the analyses. We believe the ponderosa pine, and Douglas-fir/ponderosa pine analyses adequately state the vigorous competition and affects in plantation establishment and early growth caused by grasses, sedges, and ceanothus brush species. We appreciate your ambivalence relating competition by red alder in the Douglas-fir/alder analysis; all is not yet known concerning the long-term impacts on forest nutrition with rotations of Douglas-fir without alder incursions.

Sincerely,



Chief, Branch of  
Forest Resources Planning

Toppenish

IN REPLY REFER TO:  
LAND OPERATIONS

000903



United States Department of the Interior

BUREAU OF INDIAN AFFAIRS

YAKIMA AGENCY  
P. O. BOX 632  
TOPPENISH, WA 98948-0632

JAN 7 1988

USDA Forest Service  
Pacific Northwest Region  
319 S.W. Pine  
P. O. Box 3623  
Portland, OR 97208

Dear Mr. Engert:

In response to your DEIS "Managing Competing and Unwanted Vegetation", our Agency has the following comments.

Alternative D would result in an integrated pest management plan approach that would minimize adverse environmental effects. The low risk to human health offered by this alternative makes it very attractive, plus it will probably result in major reductions in acres treated with herbicides.

However, I would like to recommend the addition of two other restrictions under this alternative:

1. No aerial spraying of herbicides
2. No burning of herbicide-treated vegetation

Thank you for this opportunity to comment on your DEIS.

Sincerely,

Superintendent

001475



United States Department of the Interior

OFFICE OF ENVIRONMENTAL PROJECT REVIEW  
500 N.E. MULTNOMAH STREET, SUITE 1692  
PORTLAND, OREGON 97232



February 22, 1988

87/1175

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, PNW Region  
P.O. Box 3623  
Portland, Oregon 97208

Dear Mr. Larsen:

The Department of the Interior has reviewed the Draft Environmental Impact Statement (DEIS) on Managing Competing and Unwanted Vegetation in the States of Oregon and Washington and portions of California and Idaho. The following comments are provided for use and consideration when preparing the final documents.

Fish and Wildlife Risk Assessment

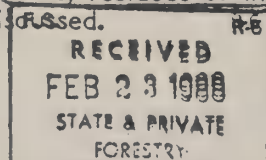
The Fish and Wildlife Service (FWS) believes the draft is deficient with respect to assessing potential risks to vulnerable fish and wildlife resources for which the FWS has important public trust protection responsibilities.

Insufficient data are presented in the draft risk assessment for key aquatic (i.e., fish and benthic invertebrates) and avian species. Relevant data should be included. Information for some key species may be available as a result of herbicide registration program requirements; however, additional specific studies and coordination may be necessary for selected plan areas. We particularly recommend close collaboration in instances where consultation with the FWS pursuant to Section 7 of the Endangered Species Act of 1973 (as amended) is foreseen.

It is recommended that the final EIS contain a strengthened fish and wildlife risk assessment, coupled with a more rigorous monitoring program that will assess, at a minimum, indirect sublethal reproductive and growth effects for representative sentinel fish and wildlife species.

Herbicide Impacts

As a result of this incomplete risk assessment, the FWS believes that potential environmental impacts have not been fully disclosed. For example, non-lethal but injurious herbicide effects on aquatic biota, and wetland and riparian habitats subjected to herbicide spray and runoff, are not adequately addressed. The effects of herbicide degradation products, residues of inert solvents, and compounds altered by forest fires should also be discussed.



While 100-foot buffer strips are commonly recognized as acceptable to prevent wetland contamination from aerial application of forest herbicides, application distance as a single criteria does not take into account physical and ecological considerations which may influence both the rate and extent of immediate or eventual contamination of wetlands through mechanisms such as bioaccumulation, accidental overspray, drift, or migration of herbicides through rain water, snow melt, etc. We would encourage the Forest Service to develop site-specific plans for each individual herbicide application and determine adequate, practical buffer areas to prevent, or at least minimize, contamination of the forest wetlands and other ecologically sensitive areas.

#### Biological Control Measures

The document reflects considerable interest in the use of biological controls, coupled with less reliance on chemical and heavy equipment techniques. However, these proposed techniques, and associated monitoring efforts, need to be more completely developed and elaborated upon in the final document.

#### Field Implementation

Because of the generic nature of the document, implementation of vegetation control measures may vary considerably throughout the Region, and will rely upon specific and undisclosed project monitoring and National Forest plans that have been or are now being developed. The extent of this variability, and the potential environmental problems associated with them are not satisfactorily acknowledged or addressed in the draft document.

#### Threatened, Endangered and Sensitive Species

Effects of "side effects" of vegetation control, or lack of control, may also impact sensitive plant or animal habitat. Such effects include erosion due to runoff which influences land beyond that treated; increased fire danger due to fire suppression and resulting fuel build up, especially in areas where prescribed fire is not used to control unwanted vegetation.

#### Special Management Areas

Research Natural Areas (RNAs) and other special management areas are not mentioned. Some of these may need fire or control of exotics to maintain the natural community. Conversely, they may be adversely affected by some of the side effects and by aerial drift.

#### Soil and Water Resources

The statement should recognize the importance of soil characteristics, climate, and geologic situation in planning the use of herbicides and mitigation measures. Adsorption and biodegradation of herbicide residues, for example, generally approach maximums in soils with high contents of organic clays, particularly if the soils are warm and moist. Conversely, downward migration of the chemicals is generally greatest in sandy or gravelly soils with low organic content and little clay. Furthermore, the amount and timing of precipitation can significantly affect the downward movement of chemicals. Also, the persistence of some herbicides has been found to be much greater in areas of low rainfall and low temperatures and where thin soils overlie fractured bedrock the potential for ground-water impacts may be increased. Factors such as these should be considered by managers in order to reduce potential impacts on ground-water resources.

# I/B Public Participation and Consultation

834-834

834-834

## Interagency Coordination

There are several places (pages I-13, II-23, II-45, II-65, and IV-75) where reference is made to interagency coordination and notification of adjacent land owners (both government and private). Additional information should be provided regarding how consideration of other ownerships and activities will be accomplished. Issues of concern include notification of intent to treat with herbicides, monitoring and cumulative impacts.

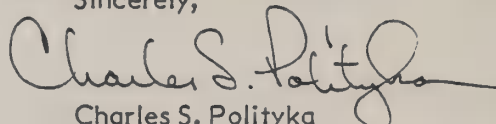
## SUMMARY

The draft risk assessment for fish and wildlife is deficient, particularly with respect to aquatic and avian species. The final EIS should contain a strengthened risk assessment and adequately address potential adverse herbicide impacts to vulnerable aquatic resources and habitats.

Potential biological control measures should also be more completely described. A more rigorous and complete description of programmatic monitoring efforts is also warranted, in conjunction with a discussion of how consistent implementation of vegetation management measures will be achieved for individual National Forest units.

Thank you for the opportunity to review this DEIS.

Sincerely,



Charles S. Polityka  
Regional Environmental Officer



## List of State Agency Letters

---

- 001022 The Resources Agency of California  
Resources Bldg., 1416 Ninth St.  
Sacramento, CA 95814  
Gordon F. Snow, Assistant Secretary for Resources
- 000112 California Regional Water Quality Control Board, North  
Coast Region  
1440 Guerneville Road  
Santa Rosa, CA 95403  
Charles S. Greene, Engineering Associate
- 001303 State of Oregon  
Office of the Governor  
State Capitol  
Salem, OR 97301-1347  
Neil Goldschmidt, Governor
- 000152 Oregon State Extension Service, Douglas County  
Courthouse Annex, 1134 SE Douglas Ave., P O Box 1165  
Roseburg, OR 97470  
Michael J. Cloughesy, Extension Agent, Forestry
- 000544 Oregon State Extension Service, Wasco County  
400 East 5th St., Courthouse Annex A  
The Dalles, OR 97058  
Alexander W. Macnab, Extension Agent
- 001030 Oregon State Extension Service, Union County  
Route 1, Box 1705  
LaGrande, OR 97850  
Ralph D. Hart, Extension Agent
- 000660 Oregon State Highway Division  
Transportation Division  
Salem, OR 97310  
Joe Hay, Agronomist

001014 Oregon Department of Agriculture  
635 Capitol Street NE  
Salem, OR 97310-0110  
Robert E. Brown, Program Supervisor, Noxious Weed Control

001314 State of Washington  
Office of the Governor  
State Capitol  
Olympia, WA 98504-0413  
Booth Gardner, Governor

001299 Washington State Noxious Weed Control Board  
c/o Catherine Hovanic, Executive Secretary  
P O Box 1064  
Kent WA 98031  
Arlie Clinkenbeard, Chairman

001022

Resources Building  
1416 Ninth Street  
95814  
(916) 445-5656  
TDD (916) 324-0804

GEORGE DEUKMEJIAN  
GOVERNOR OF  
CALIFORNIA



THE RESOURCES AGENCY OF CALIFORNIA  
SACRAMENTO, CALIFORNIA

California Conservation Corps  
Department of Boating and Waterways  
Department of Conservation  
Department of Fish and Game  
Department of Forestry  
Department of Parks and Recreation  
Department of Water Resources

Air Resources Board  
California Coastal Commission  
California Tahoe Conservancy  
California Waste Management Board  
Colorado River Board  
Energy Resources Conservation and Development Commission  
San Francisco Bay Conservation and Development Commission  
State Coastal Conservancy  
State Lands Division  
State Reclamation Board  
State Water Resources Control Board  
Regional Water Quality Control Boards

Mr. Gary Larsen  
U.S. Forest Service  
Post Office Box 3623  
Portland, OR 97208

January 8, 1988

Dear Mr. Larsen:

The State has reviewed the Draft Environmental Impact Statement, Managing Competing and Unwanted Vegetation, Del Norte County, submitted through the Office of Planning and Research.

Review of this document was coordinated with the California Highway Patrol, Air Resources Board, North Coast Regional Water Quality Control Board, and the Departments of Fish and Game, Forestry, Parks and Recreation, Transportation, and Water Resources.

None of the above-listed reviewers has provided a comment concerning the subject document. Consequently, the State will have no recommendations or comments to offer.

Thank you for providing an opportunity to review this project.

Sincerely,

A handwritten signature in cursive script, appearing to read "Gordon F. Snow".

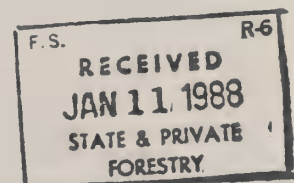
for Gordon F. Snow, Ph.D  
Assistant Secretary for Resources

RECEIVED

JAN 11 1988

cc: Office of Planning and Research  
1400 Tenth Street  
Sacramento, CA 95814

(SCH 87102020)



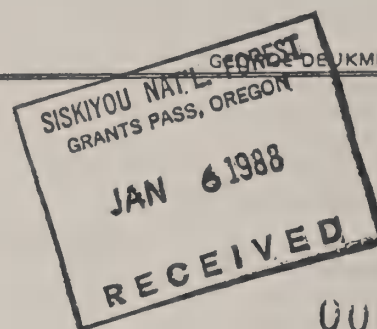
# I/B Public Participation and Consultation

STATE OF CALIFORNIA

## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD— NORTH COAST REGION

1440 GUERNEVILLE ROAD  
SANTA ROSA, CA 95403  
Phone: (707) 576-2220

January 4, 1988



000112

Mr. Gary Larsen  
Vegetation Management Group Leader  
United States Department of Agriculture  
Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

The following comments are forwarded in response to the Pacific Northwest Region's draft Environmental Impact Statement (EIS) on Managing Competing and Unwanted Vegetation. Of the various vegetation management practices discussed, the California Regional Water Quality Control Board, North Coast Region, is most concerned about the application of herbicides. The Regional Board has adopted requirements for the aerial application of herbicides on timberlands. These requirements include the submission of specific information to this office prior to the aerial application of any herbicide. In the past we have worked with Forest Service staff on both the Siskiyou and Rogue River National Forests when herbicides were aerally applied in California. Because of this past experience, we will assume that they are still aware of the Regional Board's requirements or at least that these requirements exist and how to contact us.

The mitigation measures for the use of herbicides and other vegetation management practices addressed in the EIS cover the primary concerns of the Regional Board. We do not have a preference for any one alternative. However, regardless of what alternative is selected, the Regional Board will require that the Forest Service provide the maximum reasonable protection for the beneficial uses of the waters of the State of California.

We have one specific comment regarding mitigation measures for herbicide use. It is our experience based on years of monitoring by the Forest Service, private industry and the Regional Board that higher concentrations of herbicides are found in water samples collected in response to stormwater runoff than in samples collected at the time of application. For this reason we are concerned that protection be provided for dry intermittent streams that would flow in response to storms that follow an aerial or broadcast ground application. For aerial applications of herbicides in our Region in California, we recommend that vegetative buffers be left along all intermittent streams, and we require sampling of stormwater runoff during the rising hydrograph of the first major storm that occurs within 30 days following the application.


On a more general note, all vegetation management practices including the aerial application of herbicides carried out by the Forest Service in California are conducted under Best Management Practices (BMPs). These practices were developed by the Forest Service under the 208 program. The majority of these practices were adopted by the Regional Board in 1980 and those applying specifically to aerial

Mr. Gary Larsen  
Page 2  
January 4, 1988

herbicide use were adopted in 1983.  
adopting these specific BMPs is enclosed.

A copy of the Regional Board's Resolution

Sincerely,

ORIGINAL SIGNED BY 

Charles S. Greene  
Engineering Associate

CSG:bcm

Enclosure

cc: Supervisor  
Rogue River National Forest  
333 West 8th Street  
Medford, OR 97501

Supervisor  
Siskiyou National Forest  
200 NW Greenfield Road  
Grants Pass, OR 97526



California Regional Water Quality Control Board  
North Coast Region

RESOLUTION NO. 83-10

AMENDING THE WATER QUALITY CONTROL PLANS  
FOR THE KLAMATH RIVER BASIN AND THE NORTH COASTAL BASIN,  
POLICY AND ACTION PLAN FOR CONTROL OF DISCHARGES OF  
HERBICIDE WASTES FROM SILVICULTURAL APPLICATIONS

WHEREAS, the North Coast Regional Water Quality Control Board adopted Water Quality Control Plans for the Klamath River Basin (1A) and the North Coastal Basin (1B) on March 20, 1975, and amended the plans on March 25, 1976; the plans and amendments have been approved by the State Water Resources Control Board and the Environmental Protection Agency.

WHEREAS, the North Coast Regional Water Quality Control Board adopted Water Quality Control Plan amendments for the Klamath River Basin (1A) and the North Coastal Basin (1B) on January 22, 1981, containing a policy and action plan for control of discharges of herbicide wastes from silvicultural application.

WHEREAS, the United States Forest Service agreed in 1977 to develop Best Management Practices on National Forest System Lands in California according to the provisions of PL 92-500, the Clean Water Act.

WHEREAS, the United States Forest Service - Pacific Southwest Region developed "Water Quality Management for National Forest System Lands in California" in April, 1979.

WHEREAS, the Regional Board conditionally approved portions of the "Water Quality Management for National Forest System Lands in California" in 1980 dealing with pesticide practices and specified that Sections 5.8 - 5.14 had unresolved issues.

WHEREAS, the United States Forest Service has completed the following actions which respond to the concerns expressed in Regional Board Resolution No. 80-5 by:

- a. revision of the "objectives, explanation, and implementation" text of 5.8 - 5.14 interim best available precautionary processes of the "Water Quality Management for National Forest System Lands in California"
- b. revision of the United States Forest Service Manual and Handbooks supporting 5.8 - 5.14
- c. development of an "Aerial Herbicide Application Handbook" (FSH 2109.21) for the Pacific Southwest Region

WHEREAS, the Regional Board finds that these actions have resulted in the development of Best Management Practices for ground and aerial herbicide and other pesticide application.

WHEREAS, implementation of the above practices have resulted in little or no discharge of herbicide wastes, and the few instances of non-compliance with any

receiving water standards have been principally the result of failure to adequately implement these practices.

WHEREAS, the goals of these Best Management Practices include:

1. Minimizing the risk of herbicides and other pesticides inadvertently entering water;
2. Minimizing the risk of herbicides and other pesticides falling directly into water;
3. Avoiding water contamination by complying with all label instructions and restrictions;
4. Determining whether herbicides and other pesticides have been restricted to intended target areas and to document and provide early warning of substantial water contamination (in accordance with Resolution 81-10).

WHEREAS, the United States Forest Service and the Regional Board will continuously evaluate the effectiveness of these Best Management Practices in protecting water quality.

WHEREAS, the United States Forest Service and the Regional Board will work together to continuously improve existing, and develop additional guidelines to aid in implementing, Best Management Practices.

WHEREAS, the text of the proposed amendments, a technical report summarizing the basis for the amendments, and environmental documentation functionally equivalent to the California Environmental Quality Act requirements were transmitted to interested individuals and public agencies for review and comment.

WHEREAS, the Regional Board held a public hearing on July 28, 1983, and carefully considered all testimony and comments received on this matter. The Board has determined that the proposed amendments will not have a significant adverse effect on the environment.

THEREFORE, BE IT RESOLVED THAT:

The Water Quality Control Plans and abstracts for the Klamath River Basin (1A) and the North Coastal Basin (1B) be modified to include the following text under "NON-POINT SOURCE MEASURES" immediately following the last section pertaining to that Policy and Action Plan for the Control of Discharges of Herbicide Wastes from Silvicultural Applications (language to be added to the plans and abstracts is underlined):

The United States Forest Service has developed Best Management Practices for the application of herbicides and other pesticides on public lands to ensure protection of water quality. Accordingly,

# I/B Public Participation and Consultation

STATE OF CALIFORNIA

GEORGE DEUKMEJIAN, Governor

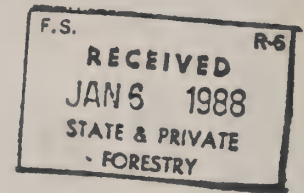
## CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD— NORTH COAST REGION

1440 GUERNEVILLE ROAD  
SANTA ROSA, CA 95403  
Phone: (707) 576-2220



January 4, 1988

Mr. Gary Larsen  
Vegetation Management Group Leader  
United States Department of Agriculture  
Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208



Dear Mr. Larsen:

The following comments are forwarded in response to the Pacific Northwest Region's draft Environmental Impact Statement (EIS) on Managing Competing and Unwanted Vegetation. Of the various vegetation management practices discussed, the California Regional Water Quality Control Board, North Coast Region, is most concerned about the application of herbicides. The Regional Board has adopted requirements for the aerial application of herbicides on timberlands. These requirements include the submission of specific information to this office prior to the aerial application of any herbicide. In the past we have worked with Forest Service staff on both the Siskiyou and Rogue River National Forests when herbicides were aerially applied in California. Because of this past experience, we will assume that they are still aware of the Regional Board's requirements or at least that these requirements exist and how to contact us.

The mitigation measures for the use of herbicides and other vegetation management practices addressed in the EIS cover the primary concerns of the Regional Board. We do not have a preference for any one alternative. However, regardless of what alternative is selected, the Regional Board will require that the Forest Service provide the maximum reasonable protection for the beneficial uses of the waters of the State of California.

We have one specific comment regarding mitigation measures for herbicide use. It is our experience based on years of monitoring by the Forest Service, private industry and the Regional Board that higher concentrations of herbicides are found in water samples collected in response to stormwater runoff than in samples collected at the time of application. For this reason we are concerned that protection be provided for dry intermittent streams that would flow in response to storms that follow an aerial or broadcast ground application. For aerial applications of herbicides in our Region in California, we recommend that vegetative buffers be left along all intermittent streams, and we require sampling of stormwater runoff during the rising hydrograph of the first major storm that occurs within 30 days following the application.

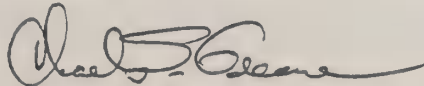
On a more general note, all vegetation management practices including the aerial application of herbicides carried out by the Forest Service in California are conducted under Best Management Practices (BMPs). These practices were developed by the Forest Service under the 208 program. The majority of these practices were adopted by the Regional Board in 1980 and those applying specifically to aerial

Mr. Gary Larsen  
Page 2  
January 4, 1988

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A copy of the Regional Board's Resolution

Sincerely,



Charles S. Greene  
Engineering Associate

CSG:bcm

Enclosure

cc: Supervisor  
Rogue River National Forest  
333 West 8th Street  
Medford, OR 97501

Supervisor  
Siskiyou National Forest  
200 NW Greenfield Road  
Grants Pass, OR 97526



California Regional Water Quality Control Board  
North Coast Region

RESOLUTION NO. 83-10

AMENDING THE WATER QUALITY CONTROL PLANS  
FOR THE KLAMATH RIVER BASIN AND THE NORTH COASTAL BASIN,  
POLICY AND ACTION PLAN FOR CONTROL OF DISCHARGES OF  
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WHEREAS, the North Coast Regional Water Quality Control Board adopted Water Quality Control Plan amendments for the Klamath River Basin (1A) and the North Coastal Basin (1B) on January 22, 1981, containing a policy and action plan for control of discharges of herbicide wastes from silvicultural application.

WHEREAS, the United States Forest Service agreed in 1977 to develop Best Management Practices on National Forest System Lands in California according to the provisions of PL 92-500, the Clean Water Act.

WHEREAS, the United States Forest Service - Pacific Southwest Region developed "Water Quality Management for National Forest System Lands in California" in April, 1979.

WHEREAS, the Regional Board conditionally approved portions of the "Water Quality Management for National Forest System Lands in California" in 1980 dealing with pesticide practices and specified that Sections 5.8 - 5.14 had unresolved issues.

WHEREAS, the United States Forest Service has completed the following actions which respond to the concerns expressed in Regional Board Resolution No. 80-5 by:

- a. revision of the "objectives, explanation, and implementation" text of 5.8 - 5.14 interim best available precautionary processes of the "Water Quality Management for National Forest System Lands in California"
- b. revision of the United States Forest Service Manual and Handbooks supporting 5.8 - 5.14
- c. development of an "Aerial Herbicide Application Handbook" (FSH 2109.21) for the Pacific Southwest Region

WHEREAS, the Regional Board finds that these actions have resulted in the development of Best Management Practices for ground and aerial herbicide and other pesticide application.

WHEREAS, implementation of the above practices have resulted in little or no discharge of herbicide wastes, and the few instances of non-compliance with any



receiving water standards have been principally the result of failure to adequately implement these practices.

WHEREAS, the goals of these Best Management Practices include:

1. Minimizing the risk of herbicides and other pesticides inadvertently entering water;
2. Minimizing the risk of herbicides and other pesticides falling directly into water;
3. Avoiding water contamination by complying with all label instructions and restrictions;
4. Determining whether herbicides and other pesticides have been restricted to intended target areas and to document and provide early warning of substantial water contamination (in accordance with Resolution 81-10).

WHEREAS, the United States Forest Service and the Regional Board will continuously evaluate the effectiveness of these Best Management Practices in protecting water quality.

WHEREAS, the United States Forest Service and the Regional Board will work together to continuously improve existing, and develop additional guidelines to aid in implementing, Best Management Practices.

WHEREAS, the text of the proposed amendments, a technical report summarizing the basis for the amendments, and environmental documentation functionally equivalent to the California Environmental Quality Act requirements were transmitted to interested individuals and public agencies for review and comment.

WHEREAS, the Regional Board held a public hearing on July 28, 1983, and carefully considered all testimony and comments received on this matter. The Board has determined that the proposed amendments will not have a significant adverse effect on the environment.

THEREFORE, BE IT RESOLVED THAT:

The Water Quality Control Plans and abstracts for the Klamath River Basin (1A) and the North Coastal Basin (1B) be modified to include the following text under "NON-POINT SOURCE MEASURES" immediately following the last section pertaining to the Policy and Action Plan for the Control of Discharges of Herbicide Wastes from Silvicultural Applications (language to be added to the plans and abstracts is underlined):

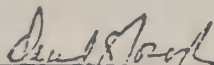
The United States Forest Service has developed Best Management Practices for the application of herbicides and other pesticides on public lands to ensure protection of water quality. Accordingly,

1. The North Coast Regional Water Quality Control Board hereby accepts United States Forest Service practices 5.8 - 5.14 as Best Management Practices (BMPs) for water quality protection from aerial herbicide application on Forest Service lands within the North Coast Region, and recognizes the "Aerial Herbicide Application Handbook" (FSH 2109.21) as a management practice that best protects water quality.
2. Experience gained over the past several years by the United States Forest Service on implementation of these management practices has led the Regional Board to conclude that discharges from aerial spray applications can be controlled such that: (1) past or present standards for protection of water quality are not violated, (2) Basin Plan water quality objectives are met, (3) most (99 percent) United States Forest Service spray applications monitored result in less than 2 ppb of 2,4-D or similar herbicides being detected in receiving waters.
3. The Basin Plan contains provisions (as specified in the Action Plan above) for adequate descriptions of treatment areas and application practices, monitoring programs, and spill contingency planning that, combined with the implementation of Best Management Practices by the United States Forest Service or other entity, will result in the waiver of issuance of waste discharge requirements (excluding issuance of requirements under Number 4 below).  
  
Adoption of waste discharge requirements are hereby waived as not contrary to the public interest when the United States Forest Service Best Management Practices are implemented, relevant Basin Plan provisions are followed, and water quality is protected.
4. Waste Discharge Requirements shall be issued on a case-by-case basis where the implementation of Best Management Practices proposed for specific projects will be insufficient for protection of water quality.

THEREFORE, BE IT FURTHER RESOLVED that the staff will establish a working group between the staff, the United States Forest Service and the interested public and will provide to the Regional Board an annual report on the implementation of these BMPs and their effectiveness in protecting water quality.

Certification

I, David C. Joseph, Executive Officer,  
do hereby certify that the foregoing  
is a full, true, and correct copy of a  
Resolution adopted by the California  
Regional Water Quality Control Board,  
North Coast Region, on July 28, 1983.



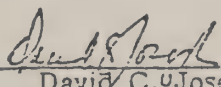
David C. Joseph  
Executive Officer

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David C. Joseph  
Executive Officer



NEIL GOLDSCHMIDT  
GOVERNOR



OFFICE OF THE GOVERNOR  
STATE CAPITOL  
SALEM, OREGON 97310-1347

February 12, 1988

Mr. Gary L. Larsen  
Vegetation Management Group Leader  
USDA Forest Service  
Pacific Northwest Region  
319 S.W. Pine, Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

Active participation in federal forest planning is a high priority for all Oregonians. In that context, this letter and the attached technical comments provide the State of Oregon's comments on the Draft Environmental Impact Statement (EIS) on Managing Competing and Unwanted Vegetation on Forest Service lands within the State of Oregon.

It is imperative to the State of Oregon that all federal land management plans be environmentally sound and provide stable, predictable supplies of commodities and amenities. The state depends upon Forest Service lands within Oregon for resources critical to Oregon's economy and environment. These lands provide a significant share of the employment in Oregon's timber industry and of many Oregon counties' revenues.

The State's objectives for the management of Forest Service lands in Oregon are twofold: 1) that these lands continue to be managed in an environmentally sound manner so that future generations have the same opportunities we do to enjoy the bounty the lands can provide; and 2) that these lands continue to produce the flow of economic benefits that they have traditionally provided. Our comments focus on evaluating your vegetation management proposals from these perspectives.

Given the commitment of Oregonians to economic development and environmental quality, Forest Service vegetation management policies should not be arbitrarily restricted nor unreasonably indifferent to real or perceived risks. The challenge is to find a balance between vegetation management techniques that maximize forest productivity while minimizing the threat of environmental damage and public health risk. I believe this needed balance in vegetation management is best achieved through an evaluation and implementation of specific management techniques on a site by site basis.

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Recognizing the contribution of Forest Service lands to Oregon's economic well-being, the State of Oregon encourages the adoption of vegetation management policies on those lands which do not preclude the efficient use of any appropriate vegetation management practices, including the responsible use of herbicides and prescribed burning.

#### INADEQUACIES OF THE ALTERNATIVES PRESENTED

The alternatives developed for the Draft EIS provide a selection of choices for vegetative management. These alternatives, however, appear to be too restrictive, in part, because of some underlying assumptions, such as uniform buffer requirements. As a result, similar long-term sustained yield and present net values are produced for each alternative, except Alternative C. The narrow range of alternatives confines the choices available to land managers.

The qualifying language for each alternative establishes management practices without reference to their effectiveness or appropriateness on a given plot of land to be managed or the specific management objective to be achieved. The Forest Service should identify vegetation management objectives, i.e., site preparation, roadside vegetation management and noxious weed control, and develop criteria by which vegetation management treatments can be prescribed. Additionally, the alternatives, to some degree, incorporate separate and distinct management philosophies, some of which may be desirable no matter which management option is selected. For example, the principal difference between Alternatives B and D relates to the use of herbicides. Alternative D establishes a definitionally vague "last option" standard while Alternative B suggests that, "Opportunities to reduce the use of herbicides will be sought." My concern is that a "last option" approach is overly restrictive and could lead to the effective removal of herbicides as a management tool, while a subjective standard such as seeking "opportunities to reduce herbicide use" may not result in any substantive change in management practices.

As you are aware, the use of herbicides on Forest Service lands has been the focus of an intense public policy debate at all levels of government. In part, this debate is a reflection of our society's increasing concern over the perceived health risks associated with a wide range of toxic chemicals. The Forest Service should use this opportunity to formulate a policy regarding herbicides which promotes their responsible use while recognizing that an integrated approach to controlling competing and unwanted vegetation may provide substantial benefits. The State of Oregon stands ready to work with the Forest Service to further define and clarify a balanced policy for vegetation management.

The Draft EIS should include varying mitigation measures and a wider range of intensities of vegetative management practices. Analyses should be undertaken by the Forest Service to determine vegetation management costs and benefits under different buffer strip width scenarios, other mitigation measures, and vegetative management practices. For example, buffer strip widths should vary, from Oregon Forest Practice Rules "minimums" (Oregon Administrative Rules 629-24-203), through a "no spray" alternative. Present net values, employment levels and county and other local and state revenue changes should be developed based on these revisions.



Gary L. Larsen  
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To facilitate the evaluation and selection of a preferred vegetation management alternative, an assessment of management practices prior to the imposition of the current injunction prohibiting the use of herbicides should be included within the Draft EIS. This may provide the only accurate basis of comparison for evaluating the impact of other alternatives. Any comparison presented in the Draft EIS using interim allowable sale quantities (ASQs) from the current draft plans is strictly speculation. The Forest Service has repeatedly assured the State that substantive changes can be made between the draft forest plans now under review and their final versions. An assessment based on current ASQ's is obviously subject to injunction restrictions, the only real "base" case.

## ECONOMIC EFFECTS OF THE ALTERNATIVES

The Draft EIS presents the economic effects of the various alternatives at the Regional level only. Before substantive comments regarding the preferred alternatives can be made, the State of Oregon must be able to identify the economic tradeoffs for both statewide and local economies. The State of Washington's forest products industry cuts less National Forest timber and their state economy is more diversified than is Oregon's. The relative economic impacts of timber harvest declines from National Forests in Oregon would, therefore, be much greater than would timber harvest declines in Washington. To provide this information, the Forest Service should analyze the economic and social effects of the alternatives at the statewide, timbershed, and local levels. These analyses should be subject to public comment and peer review and should be available prior to preparation of the Final EIS. Based on the economic analysis presented in the Draft EIS, it is impossible to determine how Oregon's communities would be affected and to what degree.

The Forest Service preferred Alternatives, B, D and E, represent the alternatives which pose the least reduction in sustained yield. On a region-wide basis, the estimated values associated with the preferred alternatives indicate relatively minor reductions in sustained yield and may be within the range of statistical error. However, National Forests within the State of Oregon will be disproportionately affected by the selection of a vegetation management option. For example, as noted on Page II-42 of the Draft EIS, the yield reduction in the Douglas-Fir/Tanoak-Madrone complex in Southwestern Oregon is significant (10%). This suggests that the use of herbicides in this forest vegetation complex is an important factor in maintaining long-term productivity. This recognition supports my earlier contention that the Forest Service should reconsider the formulation of the various alternatives and adopt a more flexible approach that addresses site specific considerations.

Since net public benefits have not been included in the analysis, it becomes impossible to weigh the significance of the net present value impact on the forests against the public benefits. The difficulty of estimating public benefits is obvious, but those benefits that can be estimated should be included in the Draft EIS. For example, from an air quality, public health and visibility improvement standpoint, nationally accepted benefit values can be used to calculate a dollar based health benefit per ton of particulate reduction. Similar factors exist for visibility benefits and are available to the Forest Service.

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#### PEER REVIEW REQUIREMENTS

Peer review of timber yield projections should have been completed before preparation of the Draft EIS. Peer review is now partially complete. The information now available from the peer reviews predicts that yield reductions will be greater using manual methods than yield values currently indicated in the Draft EIS. Since the peer review process is not yet complete, reviewers of the Draft EIS will not have the benefit of this analysis before they prepare their comments. Accordingly, the final vegetation management plan should be revised to account for errors or inefficiencies identified through the peer review process. Additional public comment should be solicited if major problems in methodology are discovered.

#### RESTRICTIONS ON TIMBER LAND BASE

As stated in Appendix A-9, only those areas to be managed for timber yields that approach their full biological site potential are included in the analysis. The Draft EIS states that this approach was taken since, "...it is difficult to correlate the vegetation management growth effects with actual timber harvest levels." While it would be difficult to estimate these growth losses, they should have been attempted because the economic impacts associated with the loss of selected vegetation management techniques may have been significantly underestimated.

Currently, only 44% of the forest lands in Oregon managed by the Forest Service are free of timber management restrictions that reduce timber productivity. This percentage may decrease when the forest management plans currently being prepared under National Forest Management Act (NFMA) become effective. The State of Oregon believes the omission of these forest lands from the analysis is a serious error in the Draft EIS. The economic efficiency analysis should be revised to include all lands managed for timber production.

#### RELATIONSHIP OF THE DRAFT EIS TO THE FOREST PLAN REVIEW PROCESS

Oregon's National Forests are currently operating under plans prepared prior to the enactment of the National Forest Management Act (NFMA) and no forest within Oregon has yet released a Final Environmental Impact Statement for its NFMA plan. The existence of a concurrent on-going process for review of the thirteen individual national forest plans raises serious questions about the ability of the Forest Service to modify those plans to reflect changes that will be incorporated in the Final Vegetation Management EIS. This concern is raised by the incorporation within each of the draft Land and Resource Management Plans (LRMPs) of the vegetation management scenario of Alternative B. Using Alternative B presupposes a desired outcome and adoption of any other alternative or use of the State of Oregon's recommended site by site selection criteria will force significant revisions in the individual forest management plans. The selection of a vegetation management preferred option, therefore, appears to have a significant impact on forest management plans. The State of Oregon believes the vegetation management question should be resolved prior to completion of the final forest management plans.

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COORDINATION WITH OREGON'S SMOKE MANAGEMENT PLAN

The Draft EIS needs to give greater emphasis to interagency coordination of smoke management activities. Oregon's smoke management program is intended to allow the fulfillment of the production goals of private, state, and federal landowners while meeting the emissions management and emissions reduction goals adopted in response to health and visibility concerns.

The Draft EIS should refer to the current efforts being taken to improve the coordination of burning activities in Oregon. In this regard, the prioritization of burning units is an issue that should be addressed in the Draft EIS. The State of Oregon also believes the Forest Service should address the corollary issues of the impact of fires that occur in wilderness areas on smoke management and burning priorities given to private treatment areas.

The Final EIS should reflect consideration of these issues when describing the projected levels of controlled burning for vegetative management and the projected levels of natural-ignition prescribed burning expected on federal lands.

CONCLUSION

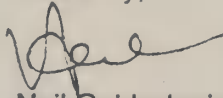
The State of Oregon endorses the development of an alternative for vegetation management which incorporates the elimination or reduction of competing vegetation and its associated hazards. Forest managers should have the flexibility to select appropriate management techniques before reductions in forest productivity become evident or unsafe conditions which pose a threat to public safety are manifested. At the same time, prevention, as defined in the Draft EIS, should be incorporated as a major element of forest management.

Additionally, the Forest Service should emphasize the incorporation of advance planning and cost-effectiveness in the management selection process. Planning, prevention, site specific mitigation measures and cost-effectiveness are fundamental issues that should be incorporated within the vegetation management program. I believe Oregon's citizens, environment and economy will be best served in this manner.

As presently written, the selection of any of the preferred alternatives is not supported by the State of Oregon. The State recommends to the Forest Service that vegetation management practices be determined following a site specific evaluation utilizing tiered decision-making criteria, giving appropriate consideration to all available management tools.

All affected State agencies have reviewed the Draft EIS on Vegetation Management. This letter and the enclosed detailed technical comments present the State of Oregon's questions, concerns, and recommendations on the Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation on Forest Service lands. Please give them serious consideration in the selection of a vegetation management strategy for Forest Service lands within the State of Oregon.

Sincerely,



Neil Goldschmidt  
Governor

STATE OF OREGON TECHNICAL COMMENTS  
ON THE DRAFT ENVIRONMENTAL  
IMPACT STATEMENT FOR MANAGING  
COMPETING AND UNWANTED VEGETATION

Submitted to the U.S.D.A. Forest Service

February 12, 1988



**I. INTERAGENCY COORDINATION**

**A. Forest Practices**

1. Mitigation measures include the strict following of all applicable state laws. The statement on page (DEIS, page II-81) should be changed to include all applicable state laws, rules and regulations. the Oregon Forest Practice Rules should be specifically mentioned.
2. Any alternative that does not meet Oregon Forest Practice Rules is unacceptable as it would violate State law, as well as break agreements between the State of Oregon and the U.S. Forest Service. Compliance with the Forest Practice Act may not occur with Alternative C, the "no action" alternative.
3. Reforestation requirements of the Forest Practice Rules are, in much of the State, stricter than the five year minimum requirement used in Region II forest planning. For example, in northwest Oregon, "In the area west of the summit of the Coast Range, compliance with the minimum stocking standards shall be achieved at the end of three (3) growing seasons following operations." Descriptions of the alternatives should specifically show how the alternatives meet Forest Practice Rules requirements and should estimate the probabilities for non-compliance. This omission should be corrected in the final plan.

**B. Smoke Management**

1. On page II-74, item #7 states that burning is prohibited during the July 4-Labor Day period with three exceptions listed. The three exceptions apply only to the Cascades. The prohibition (and exceptions) apply only on non-meterologically impaired days in the Cascades. In the Coast Range, the prohibition is modified by allowing burning but minimizing visibility impacts by managing emissions and by considering upper level wind trajectories over the next two day period. On impaired days, burning can occur. This should be corrected in the final plan.
2. On page III-17, Seaside is erroneously listed as a designated area. Lincoln City was not identified as a designated area. In the final plan, Lincoln City should be identified as a designated area and Seaside should be excluded.
3. A statement on page III-18 says that there has been a decrease in acres and amounts of slash treated on federal land in the recent years. This statement may be valid for the Region as a whole, but not for Oregon. Acres burned on national forests and amounts of slash treated have remained steady in Oregon; in addition, BLM totals have increased. Prior to preparation of the final plan, the Department's Smoke Management Annual Reports should be reviewed. Oregon and Washington treatments should be reviewed, analyzed and reported separately.



C. Endangered Plant Species

1. The Forest Service should be apprised that the Oregon Department of Agriculture is now the appropriate state agency of reference concerning state listings of threatened and endangered plant species.

D. Highway Division Right of Way

1. The Oregon State Highway Division has highway right-of-way through all of the national forests in Oregon and will be affected by the Forest Service Final Environmental Impact Statement. On page 15 of the Summary under mitigation measures the Forest Service must prepare an environmental analysis and an human health management plan for each project. Does this also apply to vegetation management practices on State Highways?

E. Coordination with Land Planning Requirements

1. The Final EIS should explain in detail what steps the Forest Service will utilize to avoid and mitigate the land use effects of implementing the selected alternative(s) in and along boundary areas between federal and nonfederal ownerships. In particular, the Forest Service should describe what efforts it will make to ensure general consistency between the final alternative(s) and applicable or affected areas, policies, and procedures contained in acknowledged city and county comprehensive plans and land use regulations (in Oregon).

II. ECONOMICS

A. Subregional Analysis

1. The Draft EIS should evaluate the several alternatives to determine timber availability in Oregon timbersheds. The Forest Service should provide economic analyses at the statewide and timbershed level. These analyses should be subject to public comment and peer review and should be factored into the decision for selecting a final plan for vegetative management.
2. Because of the differences in the economies of the two states, Oregonians may view their relationships to national forests in different perspectives than might citizens of Washington. This may also occur at the timbershed levels because of the differences in relative economic dependencies of Oregon's communities on timber harvests from national forests.

Timber availability projections made by Oregon State University and the Forestry Department project a decline in the timber harvest level on industrial ownerships during the next several decades in most of Oregon's timbersheds. The most recent research by Forest Service Economist Kent Connaughton supports these conclusions (See Attachment 1) as do preliminary projections made by Brian Greber at Oregon State University.

In addition, harvests on Oregon's National Forests are expected to fall about ten percent from current levels, from an estimated 1985-87 average of 3.6 billion board feet to approximately 3.2 billion board feet, as a result of NFMA planning.

These falldowns will be particularly severe in southwest Oregon, an area consisting of habitat types which suffer severe drops in LRSY if silvicultural tools for vegetative management are limited. Note that the 30,000 to 40,000 acre release treatment backlog is concentrated in the southern Cascades subregion (Appendix A-35). This is also an area in which two of the national forests, the Siskiyou and Rogue River, have projected large drops in potential timber sales as a result of current NFMA planning.

B. Demand Functions and Price Trends - (Draft EIS, Appendix B-5)

1. The Forest Service should not assume that the demand curve for timber is infinitely elastic in Oregon's timberheds.
2. Decreased timber availability is expected in most of Oregon's timberheds at the same time as demand for Oregon produced wood products is expected to increase. Particularly significant is the 15% surcharge on Canadian lumber imported into the United States. This is expected to result in less Canadian market-share of the United States lumber demand. United States demand is expected to remain at high levels as increased remodeling is expected to compensate for somewhat lower housing starts, accounting for over 15 billion board feet of the total 50 billion U.S. lumber consumption in 1987.
3. There is also an expectation of increased demand from overseas. Japanese housing starts will total 1.71 million by the end of 1987, surpassing those of the United States. Because of the lowering of the value of the dollar relative to the yen, Oregon lumber and logs will be more attractive in the Japanese market. For example, the import share of softwood timber arrivals at Japanese sawmills was 52% of the total in 1985; the import share is expected to be 60% in 1988. Other overseas demand is expected to increase also, resulting in a total of over 3 billion bf of softwood logs likely to be exported in 1988 from Washington and Oregon.

This means that competition for a scarce resource, stumpage supplies, could increase dramatically, benefiting those owning standing timber. Those companies without fee timber producing for the domestic market could be severely damaged, unless adequate supplies of stumpage are available from the public ownerships in Oregon, particularly SW Oregon. Recent projections by Clear Vision Associates shows stumpage prices skyrocketing over the next several years. The bid price for westside Douglas-fir forest Service stumpage is expected to jump from \$187 per mbf in 1987 to \$224 per mbf in 1988. During the same period, prices of Douglas-fir log exports to Japan from Washington and Oregon are expected to increase by 19%.

With intensive competition for stumpage expected, it is unrealistic to conclude that a horizontal demand curve exists for national forest timber in Oregon. A supply/demand analysis should be undertaken at the timbershed level. The subregional market model will soon be available from the Pacific Northwest Research Station to make reasonable estimates of stumpage supplies and demands for forest ownerships in Oregon. Region 6 may use this model in their timber analysis of the cumulative effects of the forest plans. A similar analysis should be incorporated in the Final EIS for Region 6 vegetation management and provided to the public for review.

C. Social and Economic Impact Analysis - (Appendix B-13)

1. The socioeconomic analysis is incomplete in that it does not consider many of the benefits of forest management to local communities and the State of Oregon. In addition to tallying the effect of the alternatives on county revenues, an analysis should be undertaken to estimate the effects on state income tax collections, timber harvest taxes, public road use fees and taxes, and property taxes. It is not possible to thoroughly evaluate the effects of the various alternatives on the well-being of Oregon's citizens until these benefits have been analyzed. Forest Service timber sales are critically important sources of revenue for local governments and schools as well as for state government.
2. In the Draft EIS, economic changes are displayed relative to Alternative B and are with regard to the expected situation during the first decade of implementation of the Forest Plans currently being developed. A better reference would have been historical levels especially since Alternative B is listed among the Forest Service's preferred alternatives.
3. Since Alternative B is chosen as the reference, only Alternative G shows higher positive economic impacts than Alternative B while all other alternatives fall below Alternative B. Displaying the results relative to recent historical numbers would best give the reviewed a sense of how the current situation would change.
4. Throughout the text, time frames and references should be noted when economic changes are addressed. For example, time frames and references should be clearly expressed on p. 22 of the Summary as well as in all tables of the DEIS.
5. The number of jobs per million board feet for timber offerings appears high. The figure shown in the Table B-5 (Appendices, p. B-22) for total jobs (direct, indirect, and induced) per million board feet of timber offerings is 17.11. The Siuslaw National Forest Plan used 12.9 jobs per million board feet of timber. Both numbers were estimated using IMPLAN.



**D. Economics of Vegetative Management**

1. No documentation was provided in the Draft EIS as to the cost of various vegetation management activities at the forest level. In addition, reviews of other landowner vegetative management treatment costs and effectiveness were not documented.
2. Private industrial timber managers in Oregon have a full range of vegetation management tools available to them. To determine if other vegetation management tools have become more cost-effective than herbicides, one should merely have a look at activity levels. Since timber harvest levels on forestry industry lands have been relatively stable, a drop in use of one vegetation management tool may indicate that the technique has become less cost-effective than other methods of vegetative management.
3. On privately managed lands in Oregon, herbicide treatment levels have remained relatively constant over the last ten years (Attachment 2). Fertilization applications, on the other hand, fell considerably during the timber depression of the early 1980's, resulting from a shortage of funds for intensive timber management. It is significant that during this period of retrenchment for forest industry, herbicide usage did not decline.
4. Average U.S. Forest Service region-wide vegetation management costs are documented in Appendix E. These costs appear to be higher than those of other ownerships. For example, aerial application of herbicides is shown at \$56 per acre (E-6). The most recent timber management plan prepared by the Forestry Department for southwest Oregon estimates aerial release spraying to cost \$35 per acre while aerial site preparation spraying was estimated to cost \$50 per acre. Costs of aerial release spraying for nonindustrial private owners on average sites has been estimated to vary between \$25 and \$60 per acre, depending on the county. Only two counties in Oregon were estimated to have aerial release costs greater than \$50.
5. Average costs for manual treatments were documented as \$206 per acre for site preparation and \$166 per acre for conifer release. Manual release treatment is estimated to cost \$100 per acre for Forestry Department lands in southwest Oregon while manual release for nonindustrial owners was estimated to vary between \$46 and \$150 on average sites.
6. Before preparation of a final vegetation management plan, a peer review of the economic and silvicultural data and assumptions used to calculate the present net values should be undertaken.

E. Present Net Value - (Draft EIS, Appendix B-10)

1. The period of analysis used is 100 years. Since timber rotations in eastern Oregon's national forests are commonly greater than 100 years, it would appear that discounted benefits from timber management would be omitted. Costs and benefits beyond 100 years are not reduced to insignificance through discounting, as stated in Appendix B. At 4% interest, present net value of revenues 100 years in the future is about 2% of the future values. Considering the value of a stand of timber at rotation age, omitting this value could significantly change benefit-cost ratios of vegetation management.

III. ERRORS AND OMISSIONS

A. Soils Resources

1. The DEIS contains a good general discussion of the types of soils found in the Pacific Northwest Region and the characteristics of these solid types. The relationship of soil types and characteristics to vegetative management strategies and necessary mitigation measures is also well addressed. The conclusion that adverse effects on soil resources caused by mechanical methods of vegetative management can be prevented by attention to specific site conditions is somewhat misleading due to the use of the word "prevented." Much of the methodology described (scalping, furrowing, contouring, etc.), and the equipment used, will cause some damage (compaction, erosion, etc.) in the absolute sense under almost any conditions. The term, "successfully mitigated" may be more appropriate.

B. Biological Methods

1. The introduction to the section on Biological Methods uses an all-encompassing definition of that term which is confusing and technically inaccurate. In the classical or academic interpretation, biological control of vegetation involves the utilization of natural enemies for the control of certain weeds. This is only possible because of the host specificity of insects; such introduced insects are free of their natural enemies, i.e., insects, disease, etc. Therefore, the field of biological control is considered to be the study and utilization of predators, pathogens, and parasites for the regulation of host population densities.
2. Grazing to control vegetation should be added to the list of general methods of managing competing and unwanted vegetation. (See second paragraph on page II-63.) However, the section on grazing needs to emphasize the fact that careful supervision is imperative to the successful use of this technique.
3. There is an omission on the top of page II-69. A host-specific flea beetle for the control of tansy ragwort is being used and should be discussed along with cinnabar larvae.



4. There is a disproportionate discussion in the document of methods of biological control that are unproven, e.g., genetics, in relation to the amount of treatment regarding what has already been accomplished and is in practice in biological control.
5. It would be more accurate to discuss forest management for timber, general forage management for livestock, general weed control, and noxious weed control as separate measures. Currently, in the DEIS, they are all included as biological methods. Some should be discussed as cultural (competitive plans) and some as physical (grazing) methods.
6. The classical concept of biological control is understated in its effects and diversity, and should be discussed in greater detail.
7. The following comments refer to specific pages in the DEIS as detailed below:
  - a. (Page II-67) Most biological control agents (BCAs) are not leaf feeders: 50% of BCAs on noxious weeds feed on the flowerheads and seeds, 19% in the crowns and stems, 17% feed on leaves, and 14% on roots.
  - b. (Page II-67) Biological control in the classical sense is: The introductions and management of the natural enemies of a weed. Livestock are not considered natural enemies; use of animals is regarded as physical control.
  - c. (Page II-67) Seeding and competitive plantings are a form of cultural, not biological control.
  - d. (Page II-67) Is the main objective to control undesirable palatable vegetation, or to provide multiple use on a site--forestry and livestock?
  - e. (Page II-67) What other state agencies are involved in selective releases of biological agents? Universities?
  - f. (Page II-68) State BCAs, rather than insects or nematodes.
  - g. (Page II-68) Most insect releases are not from USDA, with the exception of the initial introduction. Most of the management comes from nursery sites in a state.
  - h. (Page II-68) Add leaf feeding as a manner in which BCAs damage noxious weeds.
  - i. (Page II-68) State some examples of successful release programs, i.e., St. Johnswort, tansy ragwort.
  - j. (Page II-68) There are not examples to date of any harm done by BCA introductions for noxious weed control.

- k. (Page II-69) Check with each state when citing examples of host-specific insects successfully used in the Pacific Northwest. The data provided is inaccurate and incomplete. A chart or table in the appendix listing weeds and agents used to date would be useful. There is no mention of flea beetle as used on tansy ragwort. The insects on leafy spurge have not proven successful anywhere. Seed weevils on the yellow star thistle are new in the Pacific Northwest; on the other thistles Rhinocyllus are proving effective. There are no root and stem weevils on Scotch broom. No mention of Chrysolina on St. Johnswort, a classic example.
- l. (Page II-69) Early seeding of low-growing grasses, etc., is cultural control, not biological.
- m. (Page II-69) Relating to pathogens and allelopathy: the secondary compounds that allow plants to be allelopathic, and toxic for certain herbivores is the very reason they are noxious in some cases.
- n. (Page II-69) Stand management is cultural and physical control.
- o. (Page II-70) Utilization of livestock is physical and cultural control.
- p. (Page II-70) BCAs are screened and supplied by USDA-ARS. They generally are supplied to the state via the Department of Agriculture or the State Land Grant University.
- q. (Page II-70) Do people need to be informed that they may get flea beetles in their water? This information is only appropriate for use of biological herbicides, not classical introductions.

C. Noxious Weeds

- 1. The department views the definition treatment of noxious weeds in the DEIS as inadequate and somewhat inaccurate. The following information is provided to assist in the development of more comprehensive documentation.

Characteristics - Characteristics of noxious weeds fall into several distinct categories:

- a. Chemistry of the weeds: They may be toxic to certain herbivores and allelopathic to some plant species (inhibit growth and/or germination);
- b. Physical structure of noxious weeds: May include spines that prevent grazing and interfere with movement around the plants, and indigestible fibers within the weeds that render them useless as forage species to certain classes of livestock;

- c. Reproductive strategies: The sexual reproduction of many noxious weeds is highly fecund, producing many seeds that simply overwhelm desirable species on germination sites.
- d. Mobility: Noxious weeds spread into new habitats by way of natural dissemination via wind, water, animals, and artificial dissemination via the activities of man (machinery, livestock, and deliberate introductions).

Effects - Effects of noxious weeds can be one or more of the following:

- e. Competition for light, space, nutrients, and water with desirable plants;
- f. Health of animals and man through toxic compounds and physical structures, such as spines that can cause injury;
- g. Contamination of seeds, forage, and food with noxious weeds and their seeds, causing extra handling costs and lower value of contaminated products;
- h. Interference of noxious weeds in the activities of man (planting, harvest, recreation, transportation, irrigation) and animals (movement and access to grazing); and
- i. Hosts of pests and pathogens of desirable plant species.

D. Impact on Streams

- 1. An additional item needing clarification relates to the discussion of pre-notification of water users downstream prior to herbicide spraying and use of biological control methods. How is downstream defined? The practicality of this requirement is dependent on this definition.

E. Stratification and Methodology - (Appendix A-9)

- 1. Only areas to be managed for timber yields approaching the full biological site potential are included in the analysis. This was done because where reduced timber yields are anticipated, "...it is difficult to correlate the vegetation management growth effects with actual timber harvest levels." It would be difficult to estimate these growth losses, but it should have been attempted because the economic impacts of loss of the various vegetation management techniques could have been drastically underestimated. Currently, only 44% of the forest lands in Oregon managed by the Forest Service are free of timber management restrictions that reduce timber productivity. This will increase when the plans currently being prepared under the National Forest Management Act (NFMA) become effective. This is a serious omission in the DEIS analysis. The economic efficiency analysis should be revised to include all lands managed for timber production.

F. Herbicide Use and Mitigation

1. The Draft EIS lacks a thorough discussion on burning of herbicide-treated slash. The Oregon Department of Environmental Quality is completing a field sampling study on this issue and preliminary findings have found no indications that herbicides, parent compounds or their combustion byproducts are being released during burning.
2. Risk assessments appear biased as they are based on acres of forest treatment with herbicides. Other factors of risk may be involved for the other treatment alternatives.
3. The U. S. Environmental Protection Agency (EPA) has completed an assessment of leaching potential of selected pesticides as part of the National Pesticide Survey. Nine of the herbicides being considered for use in the vegetation management program, were included in this assessment. This EPA assessment should be examined as EPA states that any of these herbicides are "leachers" and would be of concern; especially near groundwater sources of drinking water.
4. Perceived risk, may be a greater obstacle to selection of vegetation management practices than actual risk because of the uncertain or contradictory nature of the data on actual human health affects of herbicides proposed for use. The predicted increase in physical injuries to forest workers from all management techniques should be considered.

G. Herbicide Mitigation - (DEIS, page II-82)

1. Herbicide mitigation measures in all alternatives include, for aerial applications, a minimum unsprayed width of 100 feet horizontal distance along Class I, II, and III streams. For aerial applications on Class IV (intermittent) streams, a minimum unsprayed width of 50 feet horizontal distance will be maintained if the stream is flowing. In addition, a minimum unsprayed width of 50 feet will be maintained along all flowing streams and all wetlands with other than aerial application methods.
2. These mitigation measures are well in excess of the buffer strips required by the Forest Practice Rules and may unnecessarily limit the range of alternatives and cost effectiveness of herbicide applications. Forest Practice Rules require "...leaving a buffer strip of at least one swath width untreated on each side of every Class I stream or area of open water." For ground applications, unsprayed buffer strips of at least ten feet on each side of every waterway or area of open water are required. Reasons for and benefits of mitigation measures beyond the Forest Practice Rules requirements are undocumented.
3. Differences in the amount of forest land in western Oregon excluded from treatment by these restrictions could be dramatic. As study by the Department of Forestry examined the potential increase of forest land precluded from herbicide treatments resulting from widening buffer strips.



Buffer strips of 200 feet would have been left on each side of Class I streams, open water, public highways and Department roads open to the public during spraying. Buffer strips would also have been left 200 feet from adjacent pasture, croplands, dwellings and barns. Under the Forest Practice Rules, the one swath wide buffer strips would have resulted in 4% of the treatment acres being left as buffer strips. Leaving the 200 foot buffers resulted in leaving 18% of the treatment areas as untreated buffer strips. The change in buffer width for aerial application of herbicides resulted in greater than a fourfold increase in the land areas devoted to buffer strips.

4. Additional analysis should be undertaken to determine the costs and benefits of various buffer strip widths for both aerial and ground application of herbicides. The reasoning for including particular buffer strip widths in alternatives should be documented. Increased public involvement in developing standards for mitigation measures such as buffer strips should be permitted.

#### H. Water Quality

1. The focus of the Oregon Department of Environmental Quality's water quality program is to protect and restore water quality to provide for the beneficial uses. Municipal water supplies were discussed on Page III-21, but no mention was made of stream use for individual water supply in many areas on or near National Forests. Similarly, irrigation uses were not discussed. A more focused discussion of vegetation management impacts on water quality and beneficial uses seems merited on III-20-22 and in subsequent discussions at IV-41-49.
2. Recognized beneficial uses that should be considered, where appropriate, include: Public Domestic Water Supply; Private Domestic Water Supply; Industrial Water Supply; Irrigation; Livestock Watering; Anadromous Fish Passage; Salmonoid Fish Rearing; Salmonoid Fish Spawning; Resident Fish and Aquatic Life; Wildlife and Hunting; Fishing; Boating; Water Contact Recreation; Aesthetic Quality; Hydro Power; and Commercial Navigation and Transportation.
3. The Oregon State Health Division manages Oregon's drinking water program. The listing of Oregon agencies involved in water issues should include the Health Division (page III-22).
4. A potential public exposure route for herbicides used on USFS lands is ingestion in drinking water. A number of public water utilities in the state rely on surface water sources. About 70 percent of Oregon's population rely on surface sources for drinking water. One hundred fifty four of Oregon's large community systems use surface water. There are about 2000 smaller public water systems (systems serving less than 25 persons each) of which about 7% use surface water. The number of private water systems serving ■ single household or groups of less than 4 families is estimated at 100,000. Something less than half of these supplies utilize surface water for an estimated total of 25,300 surface intakes serving nearly 1.8 million people. The Draft EIS should contain additional information that assesses the potential for herbicide contamination of public drinking water supplies.



I. Fish and Wildlife Concerns

1. The statement relating site specific impacts to fish and wildlife habitat was difficult to interpret. Most of the discussion regarding chemicals dealt with toxicity to species rather than with the indirect effects of managing vegetation that profoundly influence wildlife through habitat alteration.
2. The Draft EIS should discuss the effects, if known, on humans from eating meat tainted with chemicals. Since there is public concern regarding human miscarriages caused by the consumption of "contaminated" game meat, the Draft EIS should also review the potential of miscarriage in big game that eat chemically treated vegetation.
3. Increased reliance upon grazing as a tool to control or prevent unwanted vegetation is proposed in the Draft EIS. However, increased grazing could conflict with big game forage and adversely affect riparian areas.

J. Roadside Vegetation

1. Projected herbicide use figures on page 11 of the summary indicate that Alternatives D and E would reduce the use of herbicides for control of unwanted vegetation by 55% and 20% respectively. This reduction in herbicide use would result in higher roadside vegetation control costs or reduced work accomplishment.
2. As a general observation, the discussion of various vegetation management activities and practices seems to be based nearly entirely on the methods and practices used by the Forest Service. Other agencies such as highways, utilities, and railroads have other priorities and needs for controlling unwanted vegetation. For example, controlling vegetation with herbicides is never done by aerial spraying on state highway right-of-way. The discussion in chapter II page 81 paragraph 2 indicates that ground application of herbicides has the advantage of being more precise but is more costly. Ground application of herbicides are the most efficient and cost-effective application method that can be used on state highway right-of-way. Paragraph 3 indicates that a disadvantage of ground applications is "the need for good road access." "Good road access" is not a problem for county road and state highway vegetation control work.
3. In Chapter II, page 12, the paragraph titled "Time for Action" states, "Action is called for at the first clear sign of potentially significant damage from unwanted vegetation." With respect to highway roadside vegetation, delaying action could result in increased road facility maintenance costs as well as vegetation control costs. The Highway Division may be required to pass on cost increases to the Forest Service.

4. Chapter II page 13 under tools Available For Alternative D, first two paragraphs and page 14 Project Design Strategy talk about prevention being the preferred strategy. Preventive vegetation management activities should be a part of any vegetation management program where these activities will work and are cost-effective. However, when roadside vegetation is blocking sight distance, impeding drainage and damaging pavements, corrective action must be taken first. Herbicides are needed to kill brush and other unwanted perennial plants in a cost-effective way. Use of herbicides in this instance can be a preventive action. Use of herbicides prevents resprouting and allows grass and other low growing perennials to re-establish providing competition for unwanted species, thereby greatly reducing the need for future corrective action.
5. By using herbicides first or in combination with mechanical cutting to kill resprouting brush species, the Oregon State Highway Division has successfully reduced the use of herbicides for brush control by more than 80% on some highways as grass and low growing herbaceous plants re-establish and provide competition for new brush seedlings.
6. The need for corrective action will increase rather than decrease (Paragraph 5, page 11-43) if use of herbicides is restricted to the last option. Cutting brush on roadsides can correct a sight distance problem but that method does not kill resprouting species as do herbicides. Therefore, corrective action will again be required in one or two years. This less efficient and more frequent corrective treatment will cause substantial increases in management costs.
7. Four herbicides, 2,4-D, Amitrole, Diuron and Fosamine, will not be available to roadside managers under Alternative E as indicated in chapter II on page 14. Loss of these four products, which are some of the most efficient and cost-effective herbicides for roadside use, would severely restrict the choice of herbicides available to roadside managers.
8. Table IV-15 chapter IV page 80 shows Alternative D to have the highest road maintenance cost of any of the three preferred alternatives yet the first paragraph on this page states that Alternative D will be the lowest cost of all alternatives "by approximately 15% within 2 years as higher initial costs begin to pay off in reduced maintenance costs." The Oregon Highway Division does not believe this will be possible with the 40% to 70% reduction in use of herbicides that is built into this alternative.
9. Paragraph 2 on page 81 of chapter IV indicates that alternatives that do not allow the use of herbicides or that restrict the use of herbicides "will result in additional miles of road not being treated." A consequence may be increased tort liability claims, functional restriction and the possible eventual closure of some roads.

10. The Oregon State Highway Division's statewide maintenance budget is funded at 85% of desired maintenance levels. Any restriction in the use of herbicides may result in much of the needed vegetation control work not being accomplished. This could result in more hazardous driving conditions for the motoring public due to restricted sight distance and more prolonged icing conditions during winter months as a result of increased pavement shading from uncontrolled tree and brush species.

K. Undefined Terminology

1. It is difficult to review the implications of the DEIS alternatives when much of the terminology is undefined and subject to more than one interpretation. Important terms should be defined. Examples include:  
  
Downstream Water Users Potentially Affected by Drift (II-18)  
Herbicides as a Last Option Considered in Alternative D (II-D)  
Acceptable Risk (IV-93)  
Contamination of surface waters (IV-47)

L. Missing or Inadequate Documentation

Missing Documentation

1. Examination of data and procedures used to project the benefits and costs of timber management is crucial to an effective review of the DEIS. Unfortunately, insufficient information was provided to allow a thorough review. Missing are virtually all data from the individual forests. The following information should be provided in the Final EIS:
  - a. Per acre costs by forest of the various vegetation management treatments and comparisons with costs of other ownerships.
  - b. Decadal harvest levels by species by forest under each of the alternatives.
  - c. Acres treated by forest by year by treatment over the last ten years and treatment levels proposed for each DEIS alternative.
  - d. Procedures used to calculate PNVs.
  - e. Documentation of criteria used to exclude the 45% of suitable acres not covered in the DEIS.
  - f. Documentation of forest land currently available for timber management becoming unsuitable for timber management by alternative and by forest.
  - g. Changes, by forest, in parameters of stand management occurring, e.g. rotation lengths, timing of thinnings, shift in species composition, as a result of implementing each of the alternatives.



h. Methods used to ensure data from individual forests was comparable.

M. Human Health Costs and Benefits

1. Human health costs and benefits to Oregonians near the treatment areas were not documented. It may be that precise and accurate estimates of these costs and benefits cannot be made. However, it should be possible to estimate relative degrees of risk. For example, for a community 10 miles from a stand being sprayed with 2-4-D in concurrence with the mitigation procedures, how much risk is involved. Is there virtually no risk? Is the risk similar to drinking a cup of coffee? Relative risks of each of the various treatment activities and risks relative to other more commonly encountered human activities should be analyzed and documented prior to selection of a final vegetation management plan.
2. Paragraph 2 on page 19 of the Summary states that Alternatives A and E will have the most worksite-type accidents "due to increased acreages treated by hand in lieu of herbicides". On what basis is the Forest Service adopting an alternative that incorporates an actual risk that is higher than perceived risks?
3. Alternative A is described on page 11-50 as approximating current conditions regarding vegetation management. However, this approximation may not reflect existing conditions because the alternative has been modified toward future implementation based upon the "...knowledge gained in recent years." The DEIS should expand on this point and provide a detailed statement which describes the extent of the knowledge gained and the conclusions to be drawn from it regarding vegetation management.
4. Table III-6 (Forest Service Herbicide Use Before 1982, Pacific Northwest) should be augmented to show the amount of herbicide used for specific purposes. Where possible this should be shown at the Forest level using a format similar to that shown below.

2,4-D

Application Matrix

Forest	Aerial	Backpack	Roadside Right of Way
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5. Figure II-10 (page II-86) shows the amount of acreage to be treated with herbicides under each scenario with the exception of Alternative D. All other alternatives that use herbicides show substantially more acreage treated than have been historically treated (40,600 acres, Page III-47). The Forest Service should include documentation explaining this increase.
6. Alternative E prohibits the use of four herbicides (2,4-D, Amitrole, Divron and Fosamine) and restricts the use of three others (Bromacil, 2,4-DP and Simazine). Although human health risk is identified as the major criteria of this alternative, there is no clear statement in the description of the alternative which identifies why these herbicides were selected to be excluded or limited.

7. Since 2,4-D represented 38% of previous herbicide use (pp. 111-47) and under Alternative D will be discontinued, what herbicide will take its place? Without specific guidance, regional foresters may be selecting herbicides to replace 2,4-D for which health risk data are not available or that may pose as great a threat to human health as 2,4-D when used in higher quantities and/or applied in a manner not previously used.
8. By selecting the alternative for non-use of certain herbicides the Forest Service appears to be acknowledging a level of unacceptable risk. If so, this level of risk is the same for the remaining alternatives where use of these herbicides is not restricted. On what basis is the Forest Service selectively determining that these herbicides are acceptable under certain alternatives yet unacceptable under others?
9. In a paper entitled, Successful Silvicultural Operations Without Herbicides in a Multiple Use Environment, presented at the National Silvicultural Workshop (May 11-14, 1987 in Sacramento, CA) by Forest Silviculturist Thomas C. Turpin, the author reports that vegetation management techniques utilized in the Siuslaw National Forest in Oregon have resulted in a significant increase in the number of contracts issued to local firms for preparation and release treatments. In turn, this is reported to have "...created a significant number of new jobs for the unskilled labor force." Based on this information, several questions emerge:
  - a. If vegetation management employment has actually increased in the Siuslaw National Forest during the period when herbicides have not been used, is it appropriate to view the adoption of Alternative A (basically the current scenario) in negative (job loss) sense?
  - b. Has the information regarding employment as portrayed in the Turpin study been incorporated within the EIS? If so, how and where? What impact has it made on the study?
  - c. If this information has not been incorporated within the EIS, what would the impact be, particularly if extrapolated for other forests?
  - d. Has the Forest Service made any effort to obtain similar data for other forests? If so, has this information been included within the EIS?
  - e. Would additional costs be entailed using alternatives to herbicides and how do they compare to employment effects?
10. There is a serious concern about the completeness and comparability of the alternative cost/benefit information. Without complete and comparable data, it will be very difficult for decision makers and the public to consider the implications of the various alternatives. In trying to compare the alternatives in terms of the benefits from reductions in health risks to the



cost in terms of losses in sustained yields, the risk index numbers and absolute value loss in sustained yield (as portrayed in Figure S-3 of the summary) appear to be in incompatible terms. This inconsistency should be corrected to present a clearer comparison of the benefit and cost ratios for the alternatives.

11. Since net public benefits have not been included in the analysis, it becomes impossible to weigh the significance of the Net Present Value impact on the forests against the public benefits. Although estimating public benefits is difficult, those benefits that can be estimated should be included in the DEIS. From an air quality, public health and visibility improvement standpoint, nationally accepted benefits values can be used to calculate a dollar benefit per ton or particulate reduction for health. Similar factors exist for visibility benefits (see: OMNI Environmental Services, "Cost/Benefit Analysis of Impact Reduction Alternative for Prescribed Burning in Western Oregon". 1986).
12. If public health and visibility benefit figures developed in Oregon Department of Environmental Quality studies are used, benefits in the order of nearly \$500 million per year would be obtained, resulting in a positive benefit/cost of about twice the NPV cost of Alternative D. These figures are based on a 25 year Net Present Value basis.

#### IV. MONITORING

- A. Is there a monitoring program to ensure that the chosen alternative will not have unforeseen consequences? Since much of the analysis in the DEIS is based on information of uncertain precision and reliability, the Forest Service should closely monitor results of the vegetative management program to ensure that no adverse health effects occur to forest workers and communities surrounding the national forests. Also important is that silvicultural practices achieve their timber management objectives so as not to cause a downward revision in ASQ through amendments to the forest plan or during the next round of planning.
- B. It is particularly crucial that monitoring be addressed in the vegetation management EIS as well as in the Forest Plans. If vegetation management targets are not met at the forest level, it may be that only a relatively small falldown per forest in future timber harvests would occur. These relatively small falldowns will likely not trigger plan amendments nor revisions. The cumulative effects of this potential falldown, however, could be substantial, could adversely affect the economy of Oregon and should be closely monitored.
- C. The Forest Service should establish and maintain a periodic vegetative management monitoring system that includes economic variables such as employment and personal income. This monitoring system should also cover how its management affects the health and safety of workers and communities. Finally, the monitoring system should track how its efforts are affecting timber yields.

- D. The level of detail in the DEIS is not adequate to insure that the chosen alternative will be fully implemented. It would be an inconsistency if one alternative is chosen yet later forest practice data based on actual practice were to find that a different alternative was really implemented. How does Region 6 propose to verify that each of the National Forests have, in fact, set in place the vegetation management alternative selected by the Regional Forester? To assure credibility, we feel that the DEIS should describe the means through which Region 6 will audit compliance with the selected alternative.

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EXTENSION SERVICE

Douglas County Office

January 7, 1988



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Gary Larsen  
Vegetation Management Group Leader  
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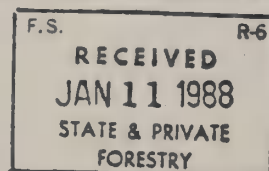
I am writing to you, in my capacity as Forestry Extension Agent, Douglas County Office of the OSU Extension Service, to comment on the Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation. I believe that Alternative B is the best alternative. Alternative G is a good alternative also, but it appears to me that the major difference between Alternatives G and B is the level of funding. I believe that if Alternative B is selected, the Forest Service can approach the timber outputs outlined for Alternative G if the funding is there.

I strongly believe that the professional land manager needs all the tools available to him to meet the ever-increasing demands of the lands and to meet the various needs of the public. I believe it is unwise to overly restrict any of the tools that a professional land manager needs to increase timber growth and availability on timber designated areas in order to counter decreasing timber availability on Wilderness and other restricted availability areas.

In the future there will be continued progress in the development of all means of vegetation management. Through professional management there will be continued progress in the best combination of uses, provided a use is not unduly restricted so that progress is inhibited.

The draft environmental impact statement compares the seven alternatives and focuses on two main issues: health risk to the public and economics, which includes timber harvest levels, revenues to local government and jobs. In general the more aggressive alternatives that use more herbicides to control vegetation are presented as having the highest risk to human health and the greatest economic benefit.

I believe that DEIS understates the economic benefits associated with the use of herbicides in an aggressive vegetation management program and overstates the human health risks associated with herbicide use.



Agriculture, Home Economics, 4-H Youth, Forestry, Community Development, Energy, and Extension/Sea Grant Programs. Oregon State University, United States Department of Agriculture, and Oregon Counties cooperating.

Page Two  
Gary Larsen

Estimates from the Umpqua National Forest show that selecting Alternative D or E over Alternative B would result in 5.3% and 14% reductions respectively, in the amount of timber offered for sale on the Umpqua in fiscal year 1989 and beyond. Revenues to Douglas County from Forest Service timber which are used for roads and schools will be reduced under Alternatives D or E by similar percentages. This translates into either reduced services or higher taxes or both. Smaller amounts of timber being harvested means fewer jobs in our mills and in our entire local economy. The draft environmental impact statement states that jobs region wide will be reduced by selecting Alternative D or E and that the majority of these lost jobs will be in timber dependent communities and rural areas, such as Douglas County.

Loss of timber harvest, jobs, and county revenues is by itself significant, but when added to reductions due to spotted owl management and possible reductions in upcoming proposed forest management plans, the loss becomes truly devastating to the economy of Douglas County. Is the public health risk associated with using herbicides as a vegetation management tool greater than the economic benefits associated with their use? I don't think so.

Health risk to the public is presented in the draft environmental impact statement as risk of exposure to herbicides and later the DEIS talks about all the bad effects of herbicides that have shown up in laboratory studies. The DEIS never brings into perspective how infinitesimal the risk of these bad things happening to you is if you are exposed to herbicides at the level the general public is exposed even in a worst case scenario. Add to this that even in the most aggressive alternative the risk of public exposure is very minimal and you have a health risk that is extremely small.

All of the herbicides used in the forest are used in agriculture to help produce the food we eat and the clothes we wear. Most of these herbicides are also used in residential lawns and gardens. In the forest an herbicide may be used from one to three times over the 50-120 year life of a managed forest, but in agricultural and lawn and garden situations the same herbicides are used as often as twice a year or more, every year that the crop is cultivated. The amount of herbicides sprayed in our forests each year is a very small percentage of the amount used in agriculture; for industrial, transportation and utility rights-of-way; and in residential lawns and gardens. In all of these situations the risk of public exposure is much greater than in the forest. Why do we perceive a health risk from forest herbicide spraying, but not from all other uses of herbicides?



Page Three  
Gary Larsen

I am concerned about the statement in Alternative B that emphasizes opportunities to reduce the use of herbicides. I believe the emphasis should be on any opportunity to increase intensity of management. This should include the present methods plus new developments including herbicides. The final EIS should clearly allow for new methods, including herbicides, to be brought into management procedures. The DEIS only allows use of 16 herbicides under Alternative B and says that new or additional herbicides must be approved by the EPA and reviewed by the Forest Service. It never says how this review will take place. Will a new EIS be necessary for each new herbicide that is developed? Will the same restrictions be applied to other methods?

Another concern I have is that procedures will be so restrictive that herbicide use will be impossible. Under herbicide mitigation procedures, it is stated that downstream water users and adjacent landowners who could be potentially affected, etc. I believe that "potentially" needs to be defined as well as downstream water users. Also how notifications are to be made. Also, it is stated that areas used for mixing herbicides and cleaning equipment shall be located where spillage will not run into surface waters or result in ground water contamination. Whenever practicable, mixing areas and heliports will not be located within domestic/municipal fish hatchery, or irrigation supply watersheds. I believe these statements are very restrictive in a narrow interpretation. For instance, almost any stream ultimately flows into all of the above categories. The intent of the statements needs to be clarified.

In Figure S-6, risk is presented as risk of exposure to the public and risk of accidents to forest workers. These are presented so that they appear to be of the same relative magnitude. The risk to workers is much greater than risk to the public and placing them to appear relatively equal is deceptive.

Perceived health risk seems to be stressed heavily, in the DEIS, to the point of comparing between alternatives how much perceived risk the public will have. I believe the Forest Service can better change the perceived risk by educating the public than by selecting an alternative because it has less perceived health risk.

In estimating timber yield losses from the various less intensive alternatives, the DEIS assumes that the cost of doing business and economic efficiency does not matter. In fact, to achieve acceptable results, mechanical and manual methods often cost five to ten times what herbicides cost; the Forest Service budget is a limiting factor. In these days of tightening Federal appropriations, it is only rational to use resources efficiently.



Page Four  
Gary Larsen

Alternative E eliminates aerial application of herbicides in the name of worker safety. However, aerial application is by far the safest method of herbicide application. The DEIS even shows that estimated injuries to workers is higher under Alternative E than any other alternative, except Alternative A which eliminates herbicides and focuses vegetation management on manual methods which have high danger to workers.

The statement is made on page A-6 that controlled experiments may tend to overestimate yield losses so a conservative approach will be used in the Forest Service analysis. I don't think controlled experiments are any more apt to overestimate than underestimate yield losses. No substantiation is given to the claim made there.

On page A-13 the statement is made that 25 to 50 percent yield reductions can be expected with no vegetation management in the Douglas-fir/Alder type. But, 25 percent is then used as the predicted reduction in long-term sustained yield levels. This seems too conservative to me. Fifty percent is more realistic, or why not split the difference with 37 percent.

The volume losses associated with no vegetation management and no herbicides in the salmonberry vegetation type are way too low. They seem to be assuming that they will get adequate site preparation and be planting in 0-year old brush fields. Adequate site preparation is difficult to achieve in the salmonberry type. Even using fire and herbicides together, the site preparation is often less than satisfactory, on the north slopes where this type is commonly found. To conclude that there is no yield loss without the use of herbicides in this type is not realistic. Even with the irrational assumption that cost is not limiting, salmonberry cannot be adequately controlled by mechanical, manual and thermal methods and stocking will be severely reduced where salmonberry is not controlled adequately.

Alternative D states that prevention of vegetation problems and integration of natural ecosystem processes will be used, but this should be done under any vegetation management system.

I believe that the effectiveness of timber production under Alternative D is overstated. The DEIS concludes that there will be only a 1-1/2 to 2 percent timber yield reduction compared to Alternative B. while 33 percent fewer acres will receive any vegetation management (533,100 in Alt. B vs. 356,700 in Alt. D). This doesn't seem reasonable. Even if we assume that other methods are as effective as herbicides, it doesn't seem reasonable to get only a 2 percent yield loss with 33 percent fewer acres treated unless we are treating acres in Alternative B that do not need to be treated. If we can prevent vegetation from becoming a problem as Alternative D assumes, why don't we do this under any alternative?

Page Five  
Gary Larsen

Overall, I believe that the DEIS is definitely understating the reduction in timber production from the loss of herbicides and from the implementation of Alternatives D and E which use considerably less herbicides than Alternative B.

In conclusion, I want to thank you for the opportunity to comment on the draft environmental impact statement. I believe that the preparers did a good job of pulling together available material on the subject. In addition to documenting the environmental analysis process, you have created a good reference document.

Any comments I have made which appear negative are made so that the final environmental impact statement can be strengthened. We definitely want a document that will stand up in court whichever alternative is selected by the Regional Forester.

Once again, I urge you to select Alternative B as the final preferred alternative for managing competing and unwanted vegetation on Region 6 National Forests. We need forests that are scenic, provide clean water, wildlife habitat and recreational opportunities; and we need forests that provide a high level of timber harvest to be cut in our sawmills and veneer plants, to provide us with jobs, and to provide our county with federal timber revenues to provide us with good roads, schools, protection and other services while keeping our property taxes down.

Sincerely,



Michael J. Cloughesy  
Extension Agent, Forestry

MJC:jab

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January 20, 1988

James Torrence  
Forest Service USDA  
P.O. Box 3623  
Portland, OR 97208

Mr. Torrence,

After reviewing the Vegetation Management Draft E15, I believe that comment is necessary. First, I did not think that the summary book accurately represented all that was included in the main draft.

But the main issue lies in the selection of the vegetation management alternative that is most practical, workable, and most benefits all aspects of our environment.

Although there are 7 options, there is only one choice: Alternative B. All tools must be available for successful vegetation management and all tools must include herbicides and burning.

Making sure that all tools are available, does not give a blanket license to rape, plunder, and pillage our environment. Alternative B has some precautionary clauses that allow for each challenge to be examined to determine goal-oriented, site-specific data and evaluation of available options to determine the best choice or combination of choices.

The report has a strong anti-herbicide flavor and I believe it wrong to predetermine that any tool be banned or used only as a last option.

Any choice other than Alternative B, appears to be a surrender to blackmail of public misconceptions about pesticides - ideas which are not supported by any independent, scientific, toxicological peer review, nor good forest management practices. Those facts must be made public.

In summary, I fully support Vegetation Management Alternative B, and recommend that application of that alternative be applied on a site by site decision, because where you cannot employ a blanket policy to ban something, neither can we employ a blanket policy to implement something.

Sincerely,

A handwritten signature in dark ink, appearing to read "Alexander W. Macnab".

Alexander W. Macnab  
Wasco County Extension Agent



Agriculture, Home Economics, 4-H Youth, Forestry, Community Development, Energy, and Extension/Sea Grant Programs. Oregon State University, United States Department of Agriculture, and Wasco County cooperating. The Extension Service offers its programs and materials equally to all people.

## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

I would recommend alternative B or C  
we feel it is necessary that the Forest  
Service control the weeds on their property  
to protect the Agriculture industries in  
Union County.

There is about 160 Acres of Forest Service land north  
of Cove that is infested with Yellowstar Thistle. Private land  
owners on either side of this land are attempting to control  
their thistle. The land is so steep it has to be flown with  
a helicopter. The only herbicide found effective so far  
has been Tordon, which is a restricted use pesticide, because  
of its persistence. In fact that is the reason it is effective.

We also need to treat Tansy Ragwort with 2,4-D + Banvel

There were 17 new sightings this year in Union County  
bringing the total to 43.

Name: Ralph L. Hart  
Address: County Extension Agent  
Rt 1 Box 1705  
LaGrande, Oregon



OREGON STATE HIGHWAY DIVISION  
COMMENTS ON  
REGION 6 US FOREST SERVICE  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
TITLED  
MANAGING COMPETING AND UNWANTED VEGETATION

GENERAL COMMENTS

The Oregon State Highway Division has highway right-of-way through all of the national forests in Oregon and will be affected by the Forest Service Final Environmental Impact Statement.

Of the three preferred alternatives listed in the Draft Environmental Impact Statement, the one that would best fit the needs of the Highway Division for roadside vegetation control is Alternative B. Alternatives F and G are also acceptable to the Highway Division even though they are not listed as preferred alternatives.

Alternatives A,C,D and E are not acceptable to the Highway Division. Alternatives A and C prohibit the use of herbicides and Alternatives D and E severely restrict their use or prohibit use of some herbicides. Restricting or prohibiting the use of herbicides as vegetation management tools would result in higher roadside vegetation control costs.

The alternative that is selected should allow full use of all available tools so roadside vegetation management can be accomplished using the most efficient and cost effective methods. This is important to agencies like state and county highway departments who must operate on a limited road maintenance budget.

SUMMARY COMMENTS

Projected herbicide use figures on page 11 of the summary indicate that Alternatives D and E would reduce the use of herbicides for control of unwanted vegetation by 55% and 20% respectively. This forced reduction in herbicide use would certainly result in higher roadside vegetation control costs or reduced work accomplishment, neither of which is acceptable to the Highway Division.

On page 15 of the Summary under mitigation measures the Forest Service must prepare an environmental analysis and a human health management plan for each project. Does this also apply to vegetation management practices on State Highways? If so, is the Highway Division going to have to "plead our case" to each National Forest or Ranger District before The Division can use herbicides again? This could be a never-ending process for which we have no resources.



# I/B Public Participation and Consultation

Managing Competing and Unwanted Vegetation  
1/22/88  
Page 2

Paragraph 2 on page 19 of the Summary states that Alternatives A and E will have the most worksite-type accidents "due to increased acreages treated by hand in lieu of herbicides". If Alternative E is "accident prone," why was it selected as one of the preferred Alternatives?

As a general observation, the discussion of various vegetation management activities and practices seems to be based nearly entirely on the methods and practices used by the Forest Service. Other agencies such as highways, utilities, and railroads have other priorities and needs for controlling unwanted vegetation. For example, controlling vegetation with herbicides is never done by aerial spraying on state highway right-of-way. The discussion in chapter II page 81 paragraph 2 indicates that ground application of herbicides has the advantage of being more precise but is more costly. I certainly agree that ground application methods are safer from an environmental and human health standpoint due to precise placement of herbicides. It is also the most efficient and cost-effective application method that can be used on state highway right-of-way. Paragraph 3 indicates that a disadvantage of ground applications is "the need for good road access". "Good road access" is not a problem for county road and state highway vegetation control work.

## SPECIFIC COMMENTS

The following are specific comments on the text of the Draft Environmental Impact Statement. These comments will be identified by chapter and page as well as topic or paragraph.

Chapter II page 12 under Alternative D Purpose and Theme, second paragraph, indicates use of preventive measures which involve monitoring and frequent evaluations of conditions. While some monitoring and evaluation may be desirable, these are non-productive activities which only increase the cost of vegetation management. If proven cost-effective management tools are used, very little monitoring and evaluation should be required. Highway agencies do not have money to waste on non-productive activities.

The paragraph titled Time for Action on the same page states "action is called for at the first clear sign of potentially significant damage from unwanted vegetation". The Highway Division is unwilling to allow any damage to pavement surfaces or functional restriction of drainage facilities because of a "wait and see" policy of vegetation control. Delaying action results in greatly increased road facility maintenance costs as well as vegetation control costs. The Highway Division would surely have good reason to pass on these forced cost increases to the Forest Service.

Managing Competing and Unwanted Vegetation  
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Page 3

Chapter II page 13 under Tools Available<sup>\*</sup> for Alternative D, first two paragraphs and page 14 Project Design Strategy talk about prevention being the preferred strategy. Preventive vegetation management activities should be a part of any vegetation management program where these activities will work and are cost-effective. However, when roadside vegetation is blocking sight distance, impeding drainage and damaging pavements, corrective action must be taken first. Herbicides are needed to kill brush and other unwanted perennial plants in a cost-effective way. Use of herbicides in this instance can be a preventive action. Use of herbicides prevents resprouting and allows grass and other low growing perennials to re-establish providing competition for unwanted species, thereby greatly reducing the need for future corrective action. Thus, herbicides generally are needed as a first option, rather than a last option, to achieve a prevention mode.

The first sentence of paragraph 5 on page 13 of chapter II under Tools Available says "Herbicides are available under this alternative, but will be the last option considered." This is extremely restrictive, precedent-setting language and should not be used in the final E.I.S. We speculate that use of this language could easily result in the Forest Service being tied up in court over any attempt to use herbicides for vegetation management.

If a "last option" concept is used, a strict definition is imperative. Any definition of this concept should use cost-effectiveness as a strong determining factor for using herbicides since budgets ultimately control how much vegetation management work is accomplished. Without this strong definition, use of herbicides will be severely restricted and costs will increase or less work will be accomplished at the same cost. Neither of these situations is acceptable to the Highway Division for all the reasons listed in the last two paragraphs of chapter IV, page 80 and the second paragraph on page 81 of the D.E.I.S.

The second sentence of paragraph 5 on page 13 of chapter II says a reduction in the use of herbicides of up to 70% is expected and indicates that conversion to this strategy will be costly. Our experience with roadside vegetation control certainly bears this out. Someone has to pay these increased costs. The Highway Division does not have sufficient maintenance budget capability to pay these added costs since that budget is funded at 85% of "standard" levels. The equipment fleet budget is currently funded at only 75% of planned needs so there is no money to buy additional equipment to perform the additional mechanical vegetation control work that would be required if alternative D were selected. There is already a precedent for the Federal Government to pay for added costs where use of cost-effective vegetation management tools have been restricted. We would expect the Forest Service to provide funds to cover any increased costs of vegetation control resulting from a restriction in the use of herbicides on highway right-of-way.

# I/B Public Participation and Consultation

Managing Competing and Unwanted Vegetation

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Page 4

Using herbicides only as a last option is like "putting the cart before the horse", a much less efficient propulsion system. By using herbicides first or in combination with mechanical cutting to kill resprouting brush species, the Highway Division has successfully reduced the use of herbicides for brush control by more than 80% on some highways as grass and low growing herbaceous plants re-establish and provide competition for new brush seedlings. We know of no way to achieve this low cost preventive mode without first using herbicides.

Alternative E is not an acceptable alternative for highway vegetation control because four herbicides, 2,4-D, Amitrole, Diuron and Fosamine, which are commonly used on roadsides will not be available to roadside managers as indicated in chapter II on page 14. Loss of these four products, which are some of the most efficient and cost-effective herbicides for roadside use, would severely restrict the choice of herbicides available to roadside managers.

Chapter II page 43 paragraph 3 under Alternative D is an admission that nobody really knows if this alternative will work in practice as it is supposed to in theory. If the Forest Service has to do research to find out if these techniques will work, they are on very shaky ground with this alternative. Certainly research on vegetation control systems is desirable, but why not stay with proven methods and do research on a limited scale rather than on all forest land in Region 6? Why should the Forest Service and cooperating agencies be forced to use vegetation control systems that have not been proven, when efficient cost-effective and proven programs are available? Certainly, if more effective vegetation management techniques are discovered through research, they should then be put into practice.

Paragraph 5 chapter II on page 43 is wishful thinking because the need for corrective action will **increase** rather than decrease if use of herbicides is restricted to the last option. Cutting brush on roadsides can correct a sight distance problem but that method does not kill resprouting species as do herbicides. Therefore, corrective action will again be required in one or two years. This less efficient and more frequent corrective treatment will cause costs to skyrocket.

Item 1 under herbicide mitigation measures page 81 of chapter II says: "downstream water users and adjacent land owners .... will be notified prior to application". The Highway Division does not notify adjacent property owners but can notify the Forest Service so they can meet their notification requirements. We feel this is a Forest Service imposed requirement and they should be responsible for carrying out any notification they deem necessary.



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Page 5

Item 7D chapter II page 82 would require a 50 foot unsprayed buffer strip along streams and wet lands. We believe buffer strips are necessary. However, the Highway Division has found that a 25 foot buffer strip is more than adequate with current ground application technology using "Directa-Spra" rotary sprayheads, "Radiarc" boomless sprayheads and polymer drift control agents. We request the buffer strip be reduced to 25 feet provided the above application technology is used. The 25 foot buffer strip is more than adequate for handgun application on brush if polymer drift control agents are used.

If monitoring must be done for any highway roadside spray application, as indicated in item 11 chapter II page 83, it will have to be done by the Forest Service since they have the trained people and are responsible for compliance with mitigation measures. The Highway Division does not have the trained personnel expertise or the budget to perform monitoring work.

The post-treatment report referred to in item 13 chapter II page 83 will also have to be accomplished by the Forest Service since this is Forest Service paperwork. The Highway Division does prepare a Daily Spray Report for all herbicide application activities and would be happy to provide a copy of these reports to the Forest Service if this information is needed for post treatment report purposes.

Table IV-2 and table IV-3 chapter IV page 14 and table IV-6 and table IV-7 chapter IV page 19 show alternative D to be the **reduced activity** alternative. Reduced hand, mechanical and herbicide use will result in a buildup of vegetation on roadsides, greater liability exposure due to reduced sight distance, lower standards of maintenance, and greatly increased future vegetation control costs. If alternative D is selected as the final alternative, any increased cost caused by delayed maintenance should be passed on to the Forest Service. Preventive activities described in alternative D may account for some reduction of future cost increases but this is mostly unproven theory.

Paragraph 4 on page 23 of chapter IV indicates that annual herbicide applications on roadsides may cause a buildup of herbicides in the soil. Many years of experience shows this has not occurred at the low rates of application being used by the Highway Division. That is why annual applications are required to control vegetation even with soil residual herbicides.

Table IV-15 chapter IV page 80 shows alternative D to have the highest road maintenance cost of any of the three preferred alternatives yet the first paragraph on this page states that alternative D will be the lowest cost of all alternatives "by approximately 15% within 20 years as higher initial costs begin to pay off in reduced maintenance costs." This will not be possible with the 40% to 70% reduction in use of herbicides that is built into this alternative. Costs will be higher rather than lower. Lower costs and a reduction in the use of herbicides for roadside brush control will only come with the option of using herbicides first to kill root systems of resprouting species.

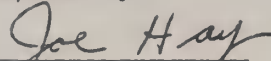


# I/B Public Participation and Consultation

Managing Competing and Unwanted Vegetation  
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Page 6

Paragraph 2 on page 81 of chapter IV indicates that alternatives that do not allow the use of herbicides or that restrict the use of herbicides "will result in additional miles of road not being treated". The result will be increased tort liability claims, functional restriction and the possible eventual closure of some roads. Closing roads is not an option for the Highway Division. Selecting an alternative that restricts or prohibits the use of herbicides raises serious questions of liability. Neither the Highway Division nor the Forest Service should be placed in the position of having to defend themselves from either agency's action or inaction.

Prepared by



Joe Hay, Agronomist  
Oregon State Highway Division

JH:ma

1/7/88



OREGON INTERGOVERNMENTAL PROJECT REVIEW

State Clearinghouse  
Intergovernmental Relations Division  
155 Cottage Street N. E.  
Salem, Oregon 97310

Phone (503)378-3732 or Toll Free in Oregon 1-800-422-3600

STATE AGENCY REVIEW

Project Number: OR871027-031-4 Return Date: DEC 04 1987

ENVIRONMENTAL IMPACT REVIEW PROCEDURES

If you cannot respond by the above return date, please call to arrange an extension at least one week prior to the return date.

ENVIRONMENTAL IMPACT REVIEW  
DRAFT STATEMENT

- ( ) This project has no significant environmental impact.
- ( ) The environmental impact is adequately described.
- (X) We suggest that the following points be considered in the preparation of a Final Environmental Impact Statement.
- ( ) No comment.

Remarks

See Attached Sheet.

PROGRAM SECTION

MANAGER \_\_\_\_\_ OFFICE UNIT \_\_\_\_\_

FA UNIT Joe PROGRAM UNIT \_\_\_\_\_

NOV 27 1987

REFER TO Final

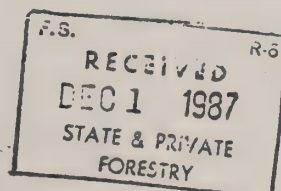
R/D \_\_\_\_\_ ACT \_\_\_\_\_ REPLY \_\_\_\_\_

DISC \_\_\_\_\_ INFO \_\_\_\_\_ FILE \_\_\_\_\_

Agency Highway Division

By John W. Stubbins  
Maint. Operations Engr.

IPR #5





OREGON INTERGOVERNMENTAL PROJECT REVIEW

State Clearinghouse  
Intergovernmental Relations Division  
155 Cottage Street N. E.  
Salem, Oregon 97310

373-7652

Phone (503)378-3732 or Toll Free in Oregon 1-800-422-3600 *discontinue*

STATE AGENCY REVIEW

Project Number: OR871027-031-4 Return Date: DEC 04 1987

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-----  
Remarks

See Attached Sheet.

PROGRAM SECTION

MANAGER \_\_\_\_\_ OFFICE UNIT \_\_\_\_\_

FA UNIT John PROGRAM UNIT \_\_\_\_\_

NOV 27 1987

REFER TO Book

R/D \_\_\_\_\_ ACT \_\_\_\_\_ REPLY \_\_\_\_\_

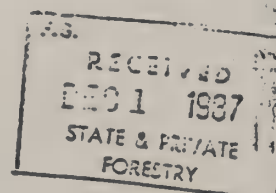
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Agency Highway Division

IPR #5

Sheldrake  
John W.  
By John W. Sheldrake  
Maint. Operations Eng

Maint. Section  
885 Airport Road  
Salem, Ore  
97310



REMARKS

The Oregon Highway Division has right-of-way through all of the National Forests in Oregon, and the final environmental impact statement will have a definite impact on Highway Division roadside vegetation management practices.

Of the three preferred alternatives listed by the Forest Service, the one that would best fit the needs of the Highway Division for roadside vegetation control is Alternative B. While they are not listed as preferred alternatives, Alternatives F and G are also acceptable to the Highway Division. Alternatives D and E would severely restrict the use of the most cost-effective vegetation management tools, which would result in significantly higher vegetation control costs and higher tort liability exposure. Since the Highway Division's statewide maintenance budget is funded at 85% of desired maintenance levels, any restriction in the use of the most cost-effective tool, herbicides, will result in much of the needed vegetation control work not being accomplished. This would result in more hazardous driving conditions for the motoring public due to restricted sight distance and more prolonged icing conditions during winter months as a result of increased pavement shading from uncontrolled tree and brush species. Alternatives A and C are not listed as preferred alternatives by the Forest Service and are totally unacceptable to the Highway Division.

The Highway Division agronomist, Mr. Joe Hay, is acting as an agency cooperator and will be providing more detailed comments on the draft environmental impact statement.

JH:clh





*Oregon Department of Agriculture*

635 CAPITOL STREET NE, SALEM, OREGON 97310-0110

November 23, 1987

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest  
Region  
P.O. Box 3623  
Portland, OR 97208

*Coop Agency*

Dear Gary:

This is in answer to your request regarding comment on the Biological Methods in the October, 1987, USDA Forest Service Draft Environmental Impact Statement for managing competing and unwanted vegetation.

The introduction to the section on Biological Methods uses an all-encompassing definition of biological methods which is confusing and technically not accurate.

In the classical or academic interpretation, biological control of vegetation involves the utilization of natural enemies for the control of certain weeds. This is only possible because of the host specificity of insects; such introduced insects are free of their natural enemies, i.e. insects, disease, etc.

Therefore, the field of biological control is considered to be the study and utilization of predators, pathogens and parasites for the regulation of host population densities.

In our opinion, grazing to control vegetation should be added to the list of general methods of managing competing and unwanted vegetation. (See second paragraph on page 11-63.)

There is an omission on the top of page 11-69. A host specific flea beetle for the control of tansy ragwort is being used and should be included along with the cinnabar larva.

Gary, if I can be of any additional assistance please let me know.

Sincerely,

*Robert E. Brown*

Robert E. Brown  
Program Supervisor  
Noxious Weed Control  
(503) 378-4987

cs

U.S. Forest Service - EIS

GENERAL COMMENTS

The Forest Service should make it clear which control measures they are using for vegetation management. They have physical and cultural mixed in with biological. There is no list or appendix tables on the type of biological control programs that are in operation now on Forest Service lands in the Pacific Northwest. Also--no data as to which species of plants can be and have been used for cultural controls via competitive plantings. Their section on grazing is a bit idealistic. Supervised grazing is imperative.

There is too much discussion about methods that are unproven, e.g. genetics, while ignoring discussions on what has been accomplished in biological control.

It would be better to keep forest management for timber, general forage management for livestock, general weed control and noxious weed control as separate measures. They are all included as biological methods. Some should go under cultural (competitive plants) and some under physical (grazing).

The classical biological control is understated in its effects and diversity.

If the spray program ban is not lifted, extra emphasis will need to be placed on biological control; it should be discussed in its classical sense in greater detail.

NOXIOUS WEEDS

Characteristics:

Characteristics of noxious weeds fall into several distinct categories:

- (1) Chemistry of the weeds: they may be toxic to certain herbivores and allelopathic to some plant species (inhibit growth and/or germination);
- (2) Physical structure of noxious weeds: may include spines that prevent grazing and interfere with movement around the plants, and indigestable

fibers within the weeds that render them useless as forage species to certain classes of livestock; (3) Reproductive strategies: the sexual reproduction of many noxious weeds is highly fecund, producing too many seeds that simply overwhelm desirable species for germination sites; and the asexual means of reproduction with rhizomes and other plant parts capable of producing new plants; (4) Mobility: of noxious weeds to spread into new habitats by way of natural dissemination via wind, water and animals and artificial dissemination via the activities of man (machinery, livestock and deliberate introductions).

Effects:

Effects of noxious weeds can be one or more of the following:

- (1) Competition for light, space, nutrients, and water with desirable plants;
- (2) Health of animals and man through toxic compounds and physical structures such as spines that can cause injury;
- (3) Contamination of seeds, forage and food with noxious weeds and their seeds, causing extra handling costs and lower costs of contaminated products;
- (4) Interference of noxious weeds in the activities of man (planting, harvest, recreation, transportation, irrigation) and animals (movement and access to grazing); and
- (5) Hosts of pests and pathogens of desirable plant species.

BIOLOGICAL METHODS

The following refer to numbers listed on attached copied pages:

1. Most biological control agents are not leaf feeders: 50% of our BCAs on noxious weeds feed on the flower heads and seeds, 19% in the crowns and stems, 17% feed on leaves and 14% on roots.
2. Biological control in the classical sense is: the introduction and management of the natural enemies of a weed. (Livestock are not natural enemies that keep weeds in check. They, along with other disturbances of soil and vegetation, often cause the problem to become worse.) Using animals is physical control.
3. Seeding and competitive plantings are a form of cultural control, not biological.

4. Is our main objective to control desirable palatable vegetation?  
Or to provide multiple use on a site--forestry and livestock?
5. What other state agencies are involved in selective releases of biological agents? Maybe universities.
6. State biological control agents (BCAs) - state arthropods, nematodes, and pathogens.
7. Most of our releases are not from USDA, only initial introductions. Most of the management comes from nursery sites in a state.
8. Add leaf feeding by BCAs.
9. State some successful examples: i.e. St. Johnswort, Tansy Ragwort.
10. There are no examples to date of any harm done by BCA introductions for noxious weed control. That occurs when generalists are used rather than specialists that key on one species.
11. Check with each state. This data is wrong and incomplete. A chart or table in Appendix of weeds and agents used to date would be useful. There is no mention of flea beetle on tansy ragwort. The insects on leafy spurge have not done well anywhere. The seed weevils on yellow starthistle are new in the Pacific Northwest; on other thistles Rhinocyllus are proving to be effective. There are no root or stem weevils on Scotch broom. No mention of Chrysolina on St. Johnswort, a classical example.
12. Put under chemical control section, not biological.
13. Tree genetics is for timber production. It seems to have little to do with unwanted vegetation problems and weeds in this section.
14. The secondary compounds that allow plants to be allelopathic and toxic for certain herbivores, is the very nature of their noxious declaration. If they have these characteristics, they will become noxious in some cases.



15. Stand management is cultural and physical control.
16. Again, physical and cultural control.
17. Biological control agents are screened and supplied by USDA-ARS.  
They generally go to the state via Agricultural Department or University.  
Then the Forest districts work with BCAs at the state level.
18. Do we need to let people know they may get flea beetles in their  
water? Only for biological herbicides, not classical introductions.

## 4 Environmental Consequences

### Noxious Weeds

THE NOXIOUS WEED PROGRAM IS PREVENTATIVE IN SCOPE, DESIGNED TO PREVENT THE ESTABLISHMENT AND/OR SPREAD OF NOXIOUS WEEDS AND TO PREVENT THE ADVERSE EFFECT OF NOXIOUS WEEDS ON ANIMALS (USUALLY DOMESTIC LIVESTOCK AND TO A LESSER EXTENT THE HUMAN POPULATION)

SEE 6TH PARAGRAPH ON P-111-30 TO SUPPORT ABOVE COMMENT.

increase in the land available for forage production, and an increase in available forage. Indirectly, the amount of forage available affects the number of animals an area can support and the amount of red meat production.

Under Alternatives B, E, F, and G, approximately the same number of acres (16,000) are treated. Under alternative C, A, and D (respectively), 0, 6,000, and 9,000 acres are treated. Thus, some reduction in land and forage availability can be expected (relative to the other alternatives) if Alternatives C, A, or D are selected.

#### OBJECTIVE 45A

The noxious weed program is designed to prevent the adverse effects of noxious weeds <sup>THAT EFFECT</sup> on animals (usually domestic livestock), and to a lesser extent, the human population. Adverse effects can result from allowing noxious weeds to spread. Poisonous species may disable or kill livestock, wildlife, and occasionally people (refer to the program descriptions in Appendix G).

Administration of the program can have effects on the environmental components. Each component is discussed earlier in this chapter. Treatment of noxious weeds is not expected to seriously affect the environmental components because of the small acreage involved (from 4,000 to 10,000 acres in the action alternatives), and ~~the~~ <sup>LEAVE EX</sup> because the biological agents (usually insects or their larvae) act only on the target species (they are "species-specific"). Herbicides would be used on about one-quarter of the acreage except in Alternatives A, in which herbicides are not allowed; C, the "no action" alternative; and G, in which herbicides are used two-thirds of the time.

**Conclusion.** Alternative C, in which no action is taken, would adversely affect the efforts to curb the spread of noxious weeds, and has the potential to result in higher mortality of livestock and a reduction in the amount of utilizable range. It would substantially detract from the efforts of cooperating agencies to control noxious weeds.

## Diversity

Diversity is popularly thought of as the number of different species in a defined area. However, more precise definitions often include measures of the relative abundance of each species, and their distribution over time and space. This broader, more precise view could be used to assess population trends and some aspects of animal habitat.

**Potential Direct Effects.** The potential direct effects of vegetation management on diversity are changes in the amount of plant cover; the number of individuals; the number of different species

which is spreading into Oregon from the south, still has a relatively limited distribution. While tansy ragwort is common west of the Cascade Mountains (and is being spread eastward by interstate movement of livestock and hay), knapweeds are more common in eastern Oregon and Washington.

A complete list of noxious weeds by treatment class, including specific information about their distribution and spread by county, is available in the Final Environmental Impact Statement for the Northwest Area Noxious Weed Control Program published by the U.S. Department of the Interior, BLM, in 1985 (Appendices C-1, C-2, C-3, and Appendix D). Additional specific information is available in individual Forest noxious weed management plans.

A discussion of the basis for and the methods of noxious weed control can be found in Appendix G in the section on noxious weed control activities. Project-level analysis must be used to determine the method that is most effective and cost efficient for controlling weeds while minimizing the risks of adverse consequences.

The Oregon Department of Agriculture (ODA) has responsibility for noxious weed control within the State of Oregon. Control activities planned on National Forest lands are coordinated with and often completed in cooperation with the ODA. *AND COUNTY PROGRAMS.*

Noxious weed control responsibilities lie with individual county weed control boards within Washington State. Cooperation with these weed control boards is essential for a successful program.

## Cooperation With Other Agencies

## Diversity

---

Diversity has both spatial and temporal dimensions. Differences in productive potential from site to site are spatial; differences related to time, successional changes, for example, are temporal. Site-specific prescriptions or projects plans should consider the need for both types of diversity.

Temporal diversity usually relates to change over time in species composition and structure following a disturbance.

Disturbances usually result from natural environmental extremes such as high wind, drought, flood, mass failure, or fire. Each of these agents has its own natural frequency—for example, 100-year floods, or the somewhat regular, almost predictable, occurrence of fire in Northwest ecosystems. Effects depend on the intensity and extent of the individual event. Severe fire, for example, can set back the ecosystem to early developmental stages, while less intense fires may only

## Temporal Diversity

### 3 Affected Environment

cause detrimental changes in water quality, block water courses, or deposit sediment which will seriously and adversely affect water or fish. The Forest Service Manual (FSM 2526) provides further direction for protection of riparian areas.

## Noxious Weeds

### Background



*The production of toxic chemicals, high rates of seed production, efficient seed dispersal, and rapid root growth and vegetative spread often give invading noxious weeds an advantage over desirable plant species. Canada thistle, illustrated here, is present in every county in Oregon and Washington.*

While some plant species classified as noxious weeds (plants that have an adverse effect on humans or their environment) are native to the Northwest, most are introduced species from Europe or Asia. Weeds continue to be introduced and spread by contaminated seed, vehicles, livestock, and natural elements such as wind, water, and wildlife.

Noxious weeds include both herbaceous and brushy species that are able to adapt rapidly to a variety of environmental conditions. The rapid spread of these species is largely due to the fact that they were introduced without the natural complex of predators, competitors, and diseases that provided a natural means of control in their native habitats.

Characteristics such as production of toxic chemicals (allelopathy), high rates of seed production, efficient seed dispersal, and strong abilities for rapid root growth and vegetative spread often give invading noxious weeds an advantage over <sup>DESIRABLE</sup> native plant species. *COMPOUNDS THAT ARE TOXIC TO CERTAIN PLANT & ANIMAL SHOULD b IN GLOSSA*

Noxious weeds often act as pioneer species. They are adapted to colonizing the exposed mineral soil of the disturbed sites. Many activities including timber harvest, grazing, prescribed burning, and road construction provide ideal sites for establishment and spread of these species.

As noxious weeds invade and occupy a site, they do so at the expense of native or desirable non-native plants. In most cases, native plant species will provide higher quality forage. In some cases, the *NOT ALWAYS* displaced native plants may be threatened, endangered, or sensitive species.

Forests can serve as seed sources, providing corridors for noxious weeds to move into surrounding agricultural lands. Severe economic losses to farmers and ranchers have been attributed to noxious weed establishment and spread.

### Current Conditions

The current distribution of noxious weeds in the Pacific Northwest Region varies by species. It depends (in part) on when the weeds were introduced, and how much suitable habitat is available for the establishment and spread of a given species.

For instance, Canada thistle is present in every county in Oregon and throughout most of Washington, while Dyers woad,



full sunlight for optimum growth. The remaining crop trees expand to take advantage of the newly available resources left after harvest.

In order to minimize soil disturbance and damage to the residual stand in an uneven age management regime, the terrain must be gentle. Otherwise, long-term damage caused by multiple entries would far outweigh the benefits to vegetation control. The Region and Forests have standards and guidelines dealing with the selection of harvest systems.

## Biological Mitigation Measures

Existing direction found in Forest Service Manual 2200 Range Management and Forest Service Manual 2500 Watershed Management provides for protection of resources during livestock grazing. Standards and Guidelines in Forest land management planning documents address local conditions and measures necessary to minimize impacts on soils and vegetation due to trampling by livestock.

1. Livestock will be strictly controlled in the vicinity of wetlands and riparian areas to prevent trampling and compaction of wet soils, water contamination, and destruction of riparian vegetation and streambanks. Specific management direction for protecting riparian areas, wetlands, and threatened, endangered, and sensitive plants is found in the applicable land and resource management plans.

2. All Forest Service uses of biological control organisms will be in cooperation with the USDA Agricultural Research Service or under individual, approved state programs.

3. Project planners will inform downstream water users who could potentially be affected by biological contamination of surface water.

PHYSICAL &  
CULTURAL

(16)

(17)

BE SPECIFIC FOR  
BIOLOGICAL PRODUCTS,  
NOT AGENTS.

(18)

## Prescribed Burning Methods

Prescribed burning is the controlled use of fire under predetermined conditions to achieve specific, preplanned land management objectives. Prescribed burning, as a vegetation management method, has advantages. In the right situation, it can be environmentally correct and very cost-effective.

Like the other vegetation management methods, it does have disadvantages. First, fire is not very selective. The effects of fire on a particular organism are not always predictable, as they depend on fire severity and residence time, as well as the particular species' heat/fire tolerance. How long the effect lasts depends upon each species' vigor,

## Methods and Mitigation Measures

## Biological Methods

\* NOTE  
- AM INCLUDING  
3 STATE DATA SHEET  
ON BIO CONTROL.

- (11) Pacific Northwest to control target vegetation include the cinnabar moth (tansy ragwort); <sup>FLEA BEETLE</sup> (leaf beetles and midges) (leafy spurge); seedhead weevils (yellow starthistle); root and stem boring (weevils) (Canada thistle and Scotch broom); and seedhead flies (diffuse knapweed).

ST JONAS WORM IS A CLASSIC  
CONTROL EXAMPLE

MOTH LARVA DO STEM BORING

- (12) Seeding with desired species is a preventive technique used on newly disturbed sites such as roadsides and other rights-of-ways. Early seeding of low-growing grass and/or brush species, often accompanied by fertilization, may inhibit later invasion of the site by taller shrubs and trees. Once a stable plant community is established, the site becomes self-maintaining. More research is needed in a variety of site conditions to determine which species are successful under what conditions.

CULTURAL

- (13) Through the Regional genetics program, the technique of genetic adaptation is being explored. Trees with the potential for fast, early growth are selected to be used as a seed source. The use of stock developed from these seeds may limit the need for conifer release in some situations. Thus far, the program has been limited to a few commercially important species. But, as results are evaluated, more species may become available and adapted for site-specific needs.

Taking advantage of natural seedlings and advance regeneration (established trees from the previous stand) can, in some cases, reduce the need for competition control. Natural seedlings go through a rigorous natural selection process, and are uniquely and specifically adapted to the site. There are usually a number of different species present, adding to the diversity and increasing the chances for survival of a healthy stand. In many cases, they grow faster than the planted trees.

THIS IS FOREST  
ENHANCEMENT, NOT  
NOXIOUS WEED CONTROL

Using advance regeneration has the same advantages as using naturals, but their older age and larger size can give them a significant advantage over the competition. However, advance regeneration stands can be diseased, suppressed, or damaged, and do not always represent a positive opportunity.

Several biological techniques show promise in the experimental stage, but are not yet operationally proven in forestry. These include:

*Biological herbicides*—naturally occurring microbial or viral agents similar to those which have proven effective in insect control and agriculture; and

- (14) *Pathogens and allelopathy*—use of introduced pathogens and chemicals produced by plants to repel or inhibit competitors.

- (15) Uneven and multi-aged management may present some options when used in a manner consistent with site and management requirements. Removing selected age classes may not allow the competitors to gain dominance on a site, since many brush species require

CULTURAL

# I/B Public Participation and Consultation

## 2 The Alternatives

deficient sites, the animals can be beneficial because they convert vegetation directly into an available source of nitrogen.

Several disadvantages must also be recognized. Timely project administration and experienced herders or riders are needed to control the duration and intensity of use. This is particularly true with sheep movement and bedding. Conifer seedlings can be susceptible to browsing or trampling damage, especially during the spring season. Livestock must be strictly controlled within riparian areas or on soils subject to compaction in order to prevent damage to soil and water resources.

Water sources, the extent of the forage, the quality or nutritional value, access, proper fencing, and control can all be limiting factors.

Experience has shown that willing operators are not plentiful. In order to obtain a release effect in conifer seedlings, or significantly reduce undesirable vegetation, livestock must be held in an area much longer than normal. Forced grazing such as this can adversely affect animal weights and marketability, a serious problem for many stockmen.

Livestock have been effectively used to control competing vegetation in the rangeland rehabilitation programs on the Forests of eastern Washington and Oregon. Sheep and cattle have also been used effectively for conifer plantation maintenance. Specific examples of successful livestock use on an operational basis can be found on the Fremont and Siuslaw National Forests.

The selective release of insects has been used to weaken or kill specific target plants in certain noxious weed situations. These biological control efforts require close coordination with several state agencies and county weed control programs, as well as federal agencies, including the USDA Agricultural Research Service. Insect releases can be effective when the population of target plants is large enough to support the insects or nematodes and adequate numbers of insects can be obtained through USDA Biological Control Laboratories. *to O.S.D.A.* (7)

- (8) *LEAVES* Insect adults and larvae can damage noxious weeds by feeding on seeds, girdling roots, and forming galls. Efforts are normally made to harvest the insects for redistribution purposes. Selective release programs have a history of success in local situations. *EXAMPLE* (9) → research effort has been directed toward this technique in recent years.

The disadvantages of this biological vegetation management technique are the intensive monitoring efforts required and the difficulty of obtaining insects. While the introduction of host-specific insects is carefully studied and planned in advance, there is always the potential risk of disrupting natural ecosystems.

Some examples of host-specific insects successfully used in the

WHICH CASE OTHER  
THAN O.D.A.



NO EXAMPLES TO  
DATE

(10) →



## Methods and Mitigation Measures

SHOULD SEPARATE OUT VEG. CONTROL & MGMT. INTO DIFFERENT HEADINGS -

1. NOXIOUS WEEDS
2. FORAGE SPECIES
3. FOREST SPECIES FOR TIMBER
4. T & E SPECIES ETC.

AND BIOLOGICAL  
PHYSICAL } DON'T CONFUSE THESE!  
CULTURAL }  
CHEMICAL AND PREVENTIVE

## Methods & Mitigation

### Biological Methods

Descriptions of the five methods of managing competing and unwanted vegetation are presented here, followed by the mitigation measures specific to each method.

## Biological Methods

Generally, biological methods include use of animals or insects to control vegetation. Grazing animals and leaf-eating insects are the most commonly used methods. There are, however, a number of less commonly used methods. (Seeding) of desired species, genetic adaptation, or use of natural and advance regeneration can be used successfully in certain situations. Other techniques involving biological herbicides, allelopathy, and pathogens are still experimental.

THIS IS REALLY PHYSICAL (2)  
METHODS AND PATHOGENS  
SEED HEAD INSECTS MOST COMMON (1)  
SEEDING IS CULTURAL METHOD (3)



Grazing animals and leaf-eating insects are the most commonly used biological methods of vegetation management.

PHYSICAL

Prolonged or forced grazing of domestic livestock (cattle and sheep) can be used to control the composition or amount of competing vegetation. This differs from the typical grazing program in that vegetation control, rather than animal weight gain or forage utilization, is the primary objective.

Livestock use can be considered when palatable or preferred species are a significant component of the vegetation, and an area large enough to support the herd or band is available for management. Careful coordination with range and wildlife habitat management goals is normally required.

(4) Grazing can have several advantages. In the proper mix of brush, weeds, and grasses, grazing can effectively control the vigor of undesirable vegetation. Grazing can be cost-effective and may often be done in conjunction with existing range permits. On some nutrient-



Table 1. Noxious weeds and status of biological control agents introduced into the state of Oregon.

WEED	SCIENTIFIC NAME	AGENT	NICHE AND TAXA	YEAR INTRODUCED	# COUNTRIES INTRODUCED	# COUNTRIES ESTABLISHED	DISTRIBUTION	INVESTIGATION	CONTROL	COLLECTIBILITY
Brown Knapweed	<u>Centaurea jacea</u>	<u>Urophora quadrifasciata</u>	Seed head fly	1960's	3	1	L	L	M	L
Canada Thistle	<u>Cirsium arvense</u>	<u>Ceutorhynchus litura</u> <u>Urophora cardui</u> <u>Rhinocyllus conicus</u>	Crown weevil Stem gall fly Seed head weevil	1961 1961 1967	2 10 1	2 6 2	L L L	S S S	M M F	O L O
Dalmatian Toadflax	<u>Linaria dalmatica</u>	<u>Calophasia lunula</u>	Defoliating moth	1963	2	0	F	O	O	O
Diffuse Knapweed	<u>Centaurea diffusa</u>	<u>Urophora affinis</u> <u>Urophora quadrifasciata</u> <u>Sphenoptera jugoslavica</u> <u>Pterolonche inspersa</u>	Seed head fly Seed head fly Root boring beetle Root boring moth	1975 1975 1980 1986	STW STW 8 1	STW STW 2 0	M M L M	M M M O	F M M O	M M L O
Gorse	<u>Vlex europaeus</u>	<u>Aplon ulicus</u>	Seed weevil	1956	3	3	M	M	O	M
Italian Thistle	<u>Carduus pycnocephalus</u>	<u>Rhinocyllus conicus</u>	Seed head weevil	1960	3	3	M	M	O	M
Leafy Spurge	<u>Euphorbia esula</u>	<u>Myiias euphorbiae</u> <u>Oreus erythrocephala</u>	Defoliating moth Stem boring beetle	1960 1962	1 1	0 0	F F	O O	O O	O O
Meadow Knapweed	<u>Centaurea pratensis</u>	<u>Urophora quadrifasciata</u>	Seed head fly	1960	1	1	L	L	M	L
Mediterranean Sage	<u>Salvia aethiopis</u>	<u>Phrydiuchus faw</u> <u>Phrydiuchus spilmant</u>	Crown weevil Root weevil	1972 1972	3 1	2 0	M F	M O	P O	M O
Milk Thistle	<u>Silybum maritimum</u>	<u>Rhinocyllus conicus</u>	Seed head weevil	1979	6	6	M	M	O	M
Musk Thistle	<u>Carduus nutans</u>	<u>Rhinocyllus conicus</u>	Seed head weevil	1979	3	3	M	M	O	M
Poison Hemlock	<u>Conium maculatum</u>	<u>Agonopterix elstroemeriana</u>	Defoliating moth	1960	STW	STW	M	M	O	M
Puncturevine	<u>Tribulus terrestris</u>	<u>Microleptus laryalis</u> <u>Microleptus lypriformis</u>	Seed weevil Stem weevil	1963 1963	8 8	1 1	L L	L L	O O	L L
Rush Skeletonweed	<u>Chondrilla juncea</u>	<u>Cystiphora schmidtii</u> <u>Aceria chondrillae</u> <u>Puccinia chondrillina</u>	Stem gall midge Gall mite Rust fungus	1978,87 1978,87 1978,87	1 1 1	1 1 1	L L L	L L L	M M M	O O O

Table 1. (Cont.)

NEED	SCIENTIFIC NAME	AGENT	NICHE AND TAXA	YEAR INTRODUCED	# COUNTRIES INTRODUCED	# COUNTRIES ESTABLISHED	DISTRIBUTION	INFESTATION	CONTROL	COLLECTABILITY
St. Johnswort	<u>Hypericum perforatum</u>	<u>Chrysolina quadrigemina</u>	Defoliating beetle	1948	STV	STV	W	M	E	M
		<u>Chrysolina hyperici</u>	Defoliating beetle	1960	2	2	U	U	U	U
		<u>Agryllis hyperici</u>	Root boring beetle	1966	1	U	U	U	U	U
		<u>Zenaidiplosis gladi</u>	Seed head fly	1982	1	0	F	U	U	U
Scotch Broom	<u>Cytisus scoparius</u>	<u>Leucopiera spartifoliella</u>	Twig mining moth	1970	10	18	W	L	U	L
		<u>Aplon fuscirostre</u>	Seed weevil	1983	6	2	L	L	F	L
Scotch Thistle	<u>Onopordum acanthium</u>	<u>Rhinocyllus conicus</u>	Seed head weevil	1982, 87	1	0	U	U	U	U
		<u>Rhinocyllus conicus</u>	Seed head weevil	1980	3	3	W	M	U	M
Slender-flowered Thistle	<u>Carduus tenuiflorus</u>	<u>Urophora affinis</u>	Seed head fly	1975	4	4	W	M	U	M
		<u>Urophora quadrifasciata</u>	Seed head fly	1975	4	4	W	M	U	M
Spotted Knapweed	<u>Centauria maculosa</u>	<u>Metzneria paucipunctella</u>	Root boring moth	1981, 87	4	2	L	S	F	U
		<u>Tyria jacobaeae</u>	Defoliating moth	1960	18	17	W	M	E	M
Tansy Ragwort	<u>Senecio jacobaeae</u>	<u>Hyalemya seneciella</u>	Seed head fly	1968	18	16	W	M	U	M
		<u>Longitarsus jacobaeae</u>	Crown-root beetle	1971	18	16	W	M	E	M
Yellow Starthistle	<u>Centauria solstitialis</u>	<u>Bangasternus orlentalis</u>	Seed head weevil	1985, 87	1	1	L	U	U	U
		<u>Urophora sirunaseva</u>	Seed head fly	1985	1	0	F	U	U	U
Yellow Toadflax	<u>Linaria vulgaris</u>	<u>Gymnastrea antirrhinal</u>	Seed head weevil	1970	1	1	L	M	U	L
		<u>Calophasia lunula</u>	Defoliating moth	1983	1	0	F	U	U	U

KEY: DISTRIBUTION within host range: W - widespread, L - limited sites, F - failed to establish, U - Unknown status.

INFESTATION of hosts: H - heavy > 70%, M - medium > 30%, L - light > 10%, S - slight < 10%, U - none detected, U - unknown status.

CONTROL ability on seeds and/or plant density: E - excellent, G - good, F - fair, P - poor, U - undetermined.

COLLECTABILITY for redistribution: M - mass collections, mL - limited collection, U - not collectable at present.

• Statewide within host range.

• Limited collectability indicates populations are slow in building or recently introduced. Work on these species should be coordinated through biological control specialists at the State Department of Agriculture. Transportation of biological control agents may require special permits and procedures.

001314



STATE OF WASHINGTON  
OFFICE OF THE GOVERNOR

OLYMPIA  
98504-0413

BOOTH GARDNER  
GOVERNOR

February 15, 1988

Mr. Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
Post Office Box 3623  
Portland, Oregon 97208

Dear Mr. Larsen:

I appreciate having this opportunity to comment on the proposed programmatic DEIS for "Managing Competing and Unwanted Vegetation" on Region 6 National Forest lands.

The vegetation management plan and the individual forest plans now being developed by Region 6 appear to be integrally linked, yet I do not see this interdependence reflected in the forest plan and vegetation management EISs. This concerns me since, if this is the case, the harvest levels proposed for each national forest will be affected directly by the vegetation management plan adopted by the Forest Service. It is difficult for this state to evaluate proposed forest service management plans without knowing, in advance and with some certainty, those key factors -- such as forest-wide standards for vegetation management -- which will affect the cut.

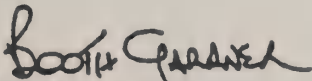
With this in mind, I ask you to consider modifying your EIS process to ensure that the draft management plans and the vegetation management proposal are evaluated in relationship to each other prior to the adoption of the final EISs for the individual forest management plans. As part of this process, there should be an explicit understanding about the effectiveness of the various control methods for competing vegetation and their specific impact on long-term forest productivity, and a clear statement that these vegetation management expectations are consistent with the assumptions used in the individual forest plans.

I am also enclosing general and page-specific comments from the Departments of Fisheries and Wildlife reflecting their concerns in the draft Environmental Impact Statement. In addition, you will find enclosed letters from the Department of Natural Resources and the Department of Transportation who, as you know, participated as formal "cooperators" throughout the planning process.

Larsen  
Page 2

I appreciate your efforts in putting together a comprehensive vegetation management plan and trust you will find my comments constructive.

Sincerely,

A handwritten signature in dark ink, appearing to read "Booth Gardner". The signature is fluid and cursive, with the first name "Booth" and last name "Gardner" clearly distinguishable.

Booth Gardner  
Governor

Enclosure

cc: Hon. Brian Boyle





WASHINGTON STATE DEPARTMENT OF  
**Natural Resources**

BRIAN BOYLE  
Commissioner of Public Lands

Forest Land Management Division, MQ-11  
Olympia, Washington 98504

JANUARY 7, 1988

TO: Dick Logan, Department of Ecology

FROM: Jack Hulsey, <sup>JH</sup> Assistant Division Manager, Silviculture  
Department of Natural Resources

RE: Agency response to DEIS MANAGING COMPETING AND UNWANTED  
VEGETATION, UNITED STATES FOREST SERVICE

The Department of Natural Resources has reviewed the document. Very early in the NEPA process the agency made a decision to be a formal cooperator. Our involvement in pre-draft consultations benefited us and help provide early substantive comment to the Forest Service.

We feel that the product is excellent as were the efforts for public and agency involvement. The preferred alternatives represent a responsible array of meaningful options.

The document is programmatic in nature. The implementation processes are site-specific, a necessary feature to reflect the variety of ecosystems in Region Six.

Because of our role as cooperator, the Department of Natural Resources has no additional comments other than to thank Region Six for their openness.



**Washington State  
Department of Transportation**

Transportation Building KF-01  
Olympia, Washington 98504-5201  
(206) 753-6005

**Duane Berentson**  
Secretary of Transportation

February 10, 1988

Ms. Andrea Beatty Riniker, Director  
Department of Ecology  
Environmental Review, PV-11  
Olympia, WA. 98504

Attention: Mr. Dick Logan

Draft Environmental Impact Statement  
Managing Competing and Unwanted  
Vegetation, U. S. Forest Service

Dear Ms. Riniker:

We have reviewed the Draft Environmental Impact Statement prepared by the U. S. Forest Service entitled Managing Competing and Unwanted Vegetation. The Forest Service should be commended for this thorough and informative document. They have accomplished an almost insurmountable task of addressing this very complex issue.

After considering the alternatives offered, we recommend adoption of Alternative B as the course of action to be taken. Alternative F and G would be our second and third choices. Of paramount concern is WSDOT's ability to accomplish a truly integrated vegetation management program for long-term benefits, within available resources, minimizing human and environmental risks.

The Washington State Department of Transportation (WSDOT) is responsible for the management of several hundreds of miles of state highways within National Forest boundaries. The alternative selected by the Forest Service for managing vegetation will have a profound effect on the Department of Transportation maintenance activities on state highway roadsides. The Department cannot support any alternative that would not allow use of all effective, efficient, and environmentally sound techniques for controlling unwanted vegetation.

We are particularly concerned that we be permitted to take advantage of the latest available technologies. Several alternatives would be very restrictive and would unduly prevent use of these new resources. We realize there may be some perceived risks involved with this approach, but feel that there are already many checks and balances within the system that safeguard the environment and humanity. We can support only Alternatives B, F or G. All others are much too restrictive for responsible stewardship of the public rights of way utilizing public funds.

The following comments relating to the document are offered for consideration:

1. Page II-79, Herbicide Methods, indicates "Sixteen herbicides are being considered for use.". Does this mean the use of herbicides will be limited to these 16, or does it mean these are the 16 evaluated by this document? The meaning is unclear. We would oppose any alternative that would limit use of any legally registered herbicide beyond that already identified on the herbicide label. Provisions should be made to accommodate "new" materials and/or "new" labelled uses, to avoid building obsolescence into the document.

2. Page II-81, Herbicide Mitigation Measures.

No. 1 would require downstream users and adjacent landowners be notified prior to application. "Downstream" should be defined. Would permittees (WSDOT) be responsible for notification? If so, how far downstream? Who are "adjacent landowners" (i.e., abutting, 1 mile, 5 miles)? What are the specific procedures for notification? This could be a very costly and time-consuming process. We believe such a procedure is inappropriate for herbicide application along the roadsides.

No. 7 would require a minimum unsprayed width of 50 feet along all flowing streams and wetlands. Does a stream need to be flowing at the time of application? We believe this measure to be unduly restrictive. Herbicide labels already limit use around waterways. This restriction may be redundant and unnecessary. With the numerous waterways crossing roadsides, this measure would be difficult to administer and result in a very sporadic and inconsistent applications. Do the cost estimates include these costs?

No. 10 requires a pilot vehicle for tanker trucks transporting herbicides. Does this apply to WSDOT? Our vehicles are usually limited to 1,500-gallon maximum, and normally haul only diluted products. "Tanker" should be defined. We believe this restriction should not apply to our vehicles. It would unnecessarily increase labor and equipment costs for application of herbicides without added safety benefits. This may be valid for tankers serving aerial applications.

No. 11 calls for monitoring spray operations. Is this to be accomplished by the Forest Service? If WSDOT is responsible, what procedures and documentation is required? Will the documentation be submitted to the Forest Service or just held by us for reference? Any additional documentation required will also increase costs to taxpayers. EPA - approved product labels do not require this monitoring. Aerial application may justify this action; however, ground application doesn't pose the same degree of risks.

Nos. 12, 13, 14, 15 & 16 refer to several Forest Service Handbooks that provide guidelines for pesticide use. These documents were not included in the appendix. Will WSDOT be required to follow the procedures in these handbooks? If we are, we would reserve further comment until after these handbooks can be reviewed. We also would request that a copy of the handbooks be sent to this office. Do these operational guidelines require that an environmental assessment be accomplished prior to each application of a pesticide? If an EA is required, will USFS accomplish such analysis?

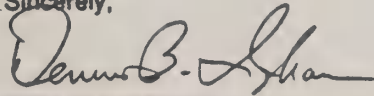
No 17 indicates individual National Forests will provide guidance for large projects. Does this mean that each National Forest may adopt additional regulations that may be even more restrictive than the mitigation measures delineated in this document? We would encourage as much uniformity as possible to prevent confusion with outside agencies such as ourselves, who work with several National Forests.

Page IV-80 - Do the costs for road maintenance shown in Table IV-15 include all costs for the 5-step management process delineated in Chapter 2 of the document? Does it include the elements of site analysis, strategy selection, environmental analysis, and monitoring, or just the design and action phase? In order to be a true maintenance cost, all 5 steps should be included if it is to be an accurate comparison. Site analysis and monitoring may be considerably more expensive for some alternatives.

In summary, WSDOT feels this document and the USFS preferred alternatives, with the exception of B, would unduly restrict roadside vegetation management activities by permittees by incorporating, categorically, the risks associated with aerial herbicide applications on large acreage of watersheds. The limited acreage of linear roadsides are inadequately given recognition as being "different" from forests' management practices for timber production. Alternative B is our choice. Alternatives F and G would allow accomplishment of our tasks at costs much greater than Alternative B.

If you have any questions regarding our comments, please contact Bob Berger, Chief  
Landscape Architect, Operations & Maintenance, 753-7359 (SCAN 234-7359).

Sincerely,



DENNIS B. INGHAM  
State Operations and Maintenance Engineer

DBI:kw  
LR



ATTACHMENT

MANAGING COMPETING AND UNWANTED VEGETATION DEIS

GENERAL COMMENTS

A. Fisheries

In general, we believe the draft plan implies a knowledge of expected impacts that does not really exist. More realistic appraisals are needed. The following example appears on page III-21 in the discussion on sediment:

"Information is lacking about the relative contribution of vegetation management activities."

Thus, any conclusions in the plan should be more like the following statement from page III-38:

"Vegetation management activities have the potential to affect fish habitat characteristics such as water temperature; sediment load; turbidity, water quality, and timing of flow; and character of streamside vegetation. The quality of fish habitat is dependent upon management practices in the watershed which affect the quantity of water and sediment in the stream. Particularly important are management practices within the riparian zone."

In the absence of any quantification of impacts on fisheries resources, we feel that, at a minimum, the final plan should at least present an "index" comparison between the specific alternatives. This could be produced mainly from the information on pages IV-71 to IV-74. Other sections of the current draft would also be useful in developing elements for an index. For example, table IV-8 on page IV-22 would be a good reference for an index value involving total acres treated by alternatives. Similarly, table II-12 on page II-38 could be used for an index value on expected impact of wildfire by alternative.

Finally, we note concern for several similar statements in the draft plan such as the following from page IV-74:

"However, effects on these aspects of channel hydrology due to vegetation management activities are minor compared to timber harvest (Osborn 1980) or road construction (Yee and Roelofs 1980.). Cumulative effects analyses associated with these activities will consider impacts on fisheries resources, as required by the National Environmental Policy Act." (emphasis added)

Unfortunately, with the exception of the draft plan for Olympic National Forest, we are not seeing this being done in Washington Forest planning. The current draft on vegetation management seems to add one more series of contradictory statements for the Forest Service to deal with on a Regional basis.

B. Wildlife

1. Maintenance of diversity is a key to maintaining wildlife populations.

A general statement occurs in this document which indicates that any decrease in wildlife habitat is "...likely to be minor and short-lived." We note, however, that your preferred alternatives would offer a program that influenced between 380,000 and 555,000 acres each and every year. The state recognizes that these program acres are in addition to vegetation-induced changes from a whole host of other activities and, as such, provide an additional increment of positive or negative effects on habitat. It is the total, and the incremental, effects which we believe it is your responsibility to provide in a quantified manner in a programmatic document intended to give direction to Forests. Lands allocated to intensive timber management commonly have prescriptions which include clearcut, site preparation (veg. mgt.), precommercial thinning, 1-3 commercial thins, clearcut. These practices are designed to approach, as closely as possible, a monoculture, at least by elevation and site class. A full, explicit, quantitative assessment of the total regime and the incremental effects strictly due to the vegetation management portion of the regime is necessary to determine whether one alternative is better than another in terms of environmental protection. Models have been developed for use in Forest planning that relate management activities to fish and wildlife population changes. We suggest that the team review these models and consult with state agencies to provide a product that meets the intent of NEPA.

2. The economic value of wildlife resources is inadequately addressed.

Economic analysis is an integral part of the planning process. Cost, benefit, and present net value (PNV) are highlighted in the comparison of alternatives and are an integral part of determining net public benefits, as required by 36 CFR 219.12(f). Because the state administers resources whose economic values are not quantified as part of these evaluations, we are concerned about the consistently preferential treatment given timber and other commodities. The plan places no value on non-commodity resources for PNV quantification, though wildlife and fish are public resources which, in the economic sense, are vital inputs for a variety of consumptive and non-consumptive goods. Enhancements represent real benefits and impacts produce real losses. Both affect PNV. We recommend the original numbers (before the 37.5 percent reduction) derived by Loomis and Sorg for the 1985 RPA documents, be used to represent beneficial values of wildlife and fish; these values are based on willingness to pay (WTP). Technically, losses of animals should be incorporated in PNV calculations through measuring willingness to accept payment (WTA). We further suggest that, since fish and wildlife recreation is expected to increase 1-2 percent per year, a flat growth rate, as used in Forest Plans, is inappropriate.

3. How does the Forest Service view precommercial thinning as an activity?

An item which was not dealt with in this document that we would like to be explored further include precommercial thinning and forage seeding/fertilization. It is not included among the list of activities labelled "vegetation management," though it is manipulation designed to release conifers from competition with undesired vegetation.

4. We urge inclusion and a high priority for the Alsea research due to its multiple rather than single-resource benefit.

Ten to 15 years worth of research have been conducted on the Alsea Ranger District of the Siuslaw National Forest. This research has explored the benefits to timber management and elk management of a seeding/fertilization program with and without livestock grazing. We are also aware of a relatively large body of other work on this topic and of the large-scale programs that are in place on most Forests. WDW, Department of Natural Resources, and Weyerhaeuser Company are presently involved in several projects studying these potential benefits in Washington State. We are puzzled as to why this is not included in the biological methods section.

5. Livestock Grazing

We also have a concern about the increase in livestock grazing proposed in the biological methods section. Grazing can be an excellent tool for improving other resources if properly managed. We recommend its use be limited to areas where a relatively intensive program of administration will be available, where wildlife will be assured of adequate forage during all portions of the year, and where sensitive habitats do not occur (including riparian management areas).

6. No Minimum Standards

A concern regarding the adequacy of this document as programmatic direction to Forests is the fact that no minimum, measurable standards or thresholds are established to assure consistency. Further, mitigating measures are not measurable, but vague and subjective. Mitigation focuses on "reduce" and "minimize," where as the standard should begin with "avoid," "compensate," and "rectify." All through the document, reference is made to standards and mitigating measures which are being developed for Forest Plans, or currently exist in other documents, whereas it is this one that is supposed to drive all the others. Additionally, much is left to local decision-making at Ranger District or Forest Supervisor level with no identification of accountability to number of acres by activity type for the preferred alternative.

We consider the damage threshold (as a criteria to determine when vegetation management is appropriate) to be key to this whole process. It is not shown, however, what those criteria are or if they have even been defined as yet. We urge that this document



identify what categories of land allocation are appropriate for treatment; i.e., general forest vs. riparian zones, for example, as well as define specifically measurable criteria for determining when vegetation management is "necessary." We would like to add that this document consistently labels vegetation subject to treatment as "undesired," "unwanted," "non-preferred," etc., which seems to indicate a bias toward intensive timber management. The Forest Plans will allocate land to several different management strategies, each with a set of objectives and specific prescriptions. It is hoped this document will recognize that unwanted, non-preferred, undesired vegetation may well be a primary adjunct in certain land allocation management strategies.

C. General

Please be very explicit about your expectations about the regrowth potential after the use of various control methods as this is very important to long term.

PAGE SPECIFIC COMMENTS

Appendices

Page G-3 to G-5: This section should discuss the results of over 15 years of research on the effects of forage seeding and fertilization on brush control, conducted on the Alsea Ranger District and elsewhere.

Page G-12: Sikes Act. The Statewide Comprehensive Plan is years overdue; annual updates are being developed on individual Forests as part of the budgeting process, but largely without consultation with WDW.

Number of acres of activity are shown for other resource areas, but not for wildlife habitat improvement. Please display acres per year by each vegetation management category (described on p. G-13). This could be displayed on the chart p. G-14 using information from the same annual report.

Page G-19: Expanding the use of seeding and fertilization of roadsides would provide a multiple-use answer to this problem. We favor options which provide for two or more resources.

How many acres of roadside rights-of-way are treated each year?

Appendix E: Discussion ignores the value of seeding and fertilization with or without livestock grazing, as practiced on the Sulsaw National Forest and elsewhere.

DEIS

Page 11-22: Summary Table. Environmental Effects section does not respond to the environmental effects issues as raised in the issues section, p. 1-12. Though important, biomass and TSP reductions are of no greater interest than water quality, fish habitat quality, and wildlife habitat quality.

Page 11-32: Economics. This evaluation uses stumpage and livestock forage as values and ignores other market and non-market values. Also missing are costs as related to losses of wildlife and fish. See our General Comments section for recommendations.



# I/B Public Participation and Consultation

Page 11-39,40: Each Forest has developed its own riparian prescription or standards and guidelines. Some are quite protective while some propose, basically, a standard timber rotation with retention of a few larger, scattered trees. Forests are not prohibiting use of vegetation management in riparian zones; most reference this document as the one to provide standards. There will, therefore, be differences among alternative effects on riparian habitat as well as fish habitat quality.

Diversity will not be the same in all alternatives due to the differences in number of acres treated.

Alternatives C and D have the least impact on diversity reduction, particularly C. This is obvious from reading your section on Silvicultural Effects of No Vegetation Management, Appendix E-11, 12. The negative effects on silviculture, as described, are positive effects on diversity.

The expected situation is summarized on pages II-39 and II-40 as follows:

"Although vegetation management activity may affect riparian vegetation, there will not be a significant variation among alternatives in effects on riparian vegetation. Since fish habitat largely depends on the condition of the adjacent riparian area, there will not be a significant variation in effects on the fisheries resource between the alternatives."

With this type conclusion, the draft plan makes no attempt at developing quantified relationships between stated options and expected productivity of fisheries resources. However, the draft has numerous qualitative references that dispute the "most significant" conclusion. For example, the monitoring section on page II-60 states in part:

"However, downstream monitoring is common where herbicides are used; stream turbidity may be monitored if mechanical methods are used; . . ."

The greater risk inherent in certain alternatives is evident by statements such as the following from page IV-17:

"Following burning, increased mass wasting (movement of soil and rock due to gravity, including rock slides, debris avalanches, and earth flows) may occur on sites steeper than 60 percent that are prone to mass failure."

In some cases, the statements reflect a lower probability of risk for major components of certain alternatives.

"Manual clearing, chopping, and weeding have a low potential for adverse impacts on water resources."

In contrast, this is followed by:

"Increased sedimentation may result from mechanical methods of vegetation management, depending on operating practices, slope steepness, and distance to the stream channel."

The greater risk of some options is also seen in the herbicide discussions. For example, page IV-86 states the following:

"Of 17 documented herbicide spills in the Region from April 1973 to April 1983, three involved entry into water. Two spills involved helicopters and entry of 50-100 gallons into small streams. One involved a truck and entry of 170 gallons into a drainage ditch."

Page II-40: Alternative C ". . . creates the highest long term risk, . . . limits vegetation management opportunities for improvement or maintaining habitat suitability." These statements are misleading and inaccurate. Please review the concepts of diversity and how plant diversity relates to wildlife species diversity and abundance.

Page II-55: The key to the scope and magnitude of the program is in the specific definition of "damage thresholds" and how these vary by specific land allocations in Forest Plans. Who defines these? They do not appear in Forest Plan documents. When will they be defined? We recommend that they be defined in this document, specifically enough to ensure consistency Region-wide.

Page II-59: We disagree that Alternative D has a high risk of adverse environmental effects. Alternative D maintains long-term site productivity, reduces TSP, and will retain higher levels of plant and wildlife species diversity, as well as more fish, than all other alternatives, except C.

Page II-61: Monitoring is needed to see if Rangers and Forest Supervisors are making decisions in environmental assessments that conform with the selected alternative; over District, Forest, and Regional land base. Accountability is not discussed.

Page II-64: This section (common mitigation measures) belongs with the previous section on designing a project. This is a regulated part of the NEPA process and does not meet WDW or USFS definitions of "mitigation;" i.e., reduce, minimize, avoid, rectify, compensate. These are all action words; your description is of a plan process.

Page II-65: Paragraph 5, last two words "where possible" are inappropriate. Mitigation, as defined p. 11-63, para. 3, is a must.

Page II-67: Consider and discuss the potential for forage seeding/fertilization to manage competing vegetation while providing food for livestock and wildlife.

Page III-23: Paragraph 2 recognizes the importance of diversity and contrasts control with elimination. Other sections of this document appear to have been written without an understanding of these concepts.

Page III-27: Final paragraph. This is a very optimistic statement which should be tempered with the other side of the coin. It has equal or greater potential for damage to wildlife habitat, visual quality, forest protection, and other management objectives.

Page III-35: Wildlife and wildlife habitat section. The description is of natural wildlife community (sets of species) fluctuations in response to natural succession. It does not reflect the current condition as practiced on

lands allocated to intensive timber management; i.e., clearcut, site-prep., plant (single species), vegetation management, precommercial thin, 1-3 commercial thins, clearcut. This regime is intended to come as close as possible to providing a monoculture, by site class and elevation at least. Wildlife cannot be expected to respond to these regimes as they would to natural succession.

Page III-37: WDW requests consultation regarding proposed projects that could affect any species on the Regional list of Sensitive Species (both for evaluation of effects and for development of mitigation measures).

Page IV-3: Environmental consequences. All alternatives are compared to Alternative B, which is described as levels being proposed in Forest Plans. WDW wonders when the horse will begin pulling the cart, in light of this document and RPA '85.

Page IV-4: Paragraph one contradicts the subtitle of Table IV-3.

If mechanical means have the greatest potential for impacts on soils, why are they 30 percent of the total program in all three preferred alternatives?

Page IV-18: Broadcast burning also displays high potential for damage, yet is from 33-38 percent of total program in the preferred alternatives.

Include a discussion of the value of seeding and fertilization in clearcuts for brush control. Biological methods impose the least risk, but are the least used techniques.

Page IV-24: The Effects and Cumulative Effects discussions are qualitative and subjective. Since this is a programmatic document, which will provide direction to all forests in Region 6, we believe that modelling and quantification of impacts need to be at least as thorough and sensitive as that being used in Forest Plans.

Page IV-41-48: Effects and Cumulative Effects discussions are qualitative only. Indicate no impacts on water due to mitigation measures. WDW does not agree. There is no attempt to combine with other activities (cumulative effects) and estimate incremental increases in impacts due to the program, though these techniques are available and used in Forest Plan documents.

Page IV-51-58: We note that the document does quantitatively estimate effects on timber yields.

Page IV-60-61: Discussion emphasizes "potential" changes, "possible" effects of vegetation management on diversity. It should be noted that, if these changes were not expected to occur, there would be no point in the program. Thus, the comment "potential effects on vegetation diversity are expected to be minimal" is misleading unless the program is expected to fail.

We consider most of this discussion misleading, for example: "...most methods of vegetation management are not intended to kill the competition. . .," followed by, "The intent is to change the dominance of species. . . by reducing the amount of competing vegetation. . ." and "...most consistent effect on vegetation is a reduction in cover of the target



species." The logical conclusion, if these statements were taken literally, is that the vegetation management program must make non-preferred vegetation smaller, or something. We suggest that a frank discussion would indicate that total eradication is not the intent (or a possibility), but that sufficient vegetation needs to be killed to release target trees or provide plantable spots, etc.

Page IV-62: Potential Cumulative Effects. Omits discussion that effects of vegetative management, along with other intensive timber management techniques, are intended to approach as closely as possible a monoculture. Fertilization, genetic tree improvement, precommercial and commercial thinnings, conversion, etc., should be quantified along with and separately from the proposed programs.

Page IV-63: Last paragraph. Direct and indirect cumulative effects also lead to changes in wildlife communities and species richness. Cumulative effects may also occur as a result of combining this program with others, as we described above under Diversity section.

Page IV-64: The wildlife section needs quantitative evaluation of effects of each proposed alternative and also cumulative effects based on program repetition and other program interactions. Paragraph 2 explains how this can be done for a project site; total effects and cumulative effects are a mathematical and modelling extrapolation. We suggest that Forests have developed techniques that could be used in this effort.

Page IV-65: Paragraph 6. Change "could" to "will" each place it occurs in this paragraph.

Page IV-67: The Alsea research on forage seeding and brush control and its value to wildlife, livestock, and timber is noticeably absent from the literature review and text, though a member of the Team writing this document has been active in the program for some years. We would like to see this discussed and considered a priority option under "biological methods."

Page IV-68: Grazing. Quantify effects.

Page IV-72: Paragraph e. Quantify the increment of additional sediment over that expected from other activities (as proposed in Forest Plans) and relate that to changes in fish numbers.

Paragraph 4. "Riparian Areas" are not defined. Forest Plan standards vary by Forest as to widths of the zone. In all Plans we have reviewed so far, the management zone is not equal to or greater than the direct influence zone. Therefore, vegetation management activities will occur in portions of riparian ecosystems which can have a direct effect on aquatic habitat.

Page IV-74: Good discussion. Quantify cumulative effects on fish together with and separately from other programs.

Page IV-75: We agree that dispersion is the key. Provide a minimum standard rather than leaving this to individual Forests.



# I/B Public Participation and Consultation

Page IV-129: Social and economic effects. The process for assessment is not adequate. See our previous comments.

Page IV-134: Though "long-term productivity" was defined to include wildlife and water, only biomass nutrient cycling is evaluated.

402J

001299

## WASHINGTON STATE NOXIOUS WEED CONTROL BOARD

Arlie Clinkenbeard  
Chairman  
509-422-3521

February 1, 1988

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509-335-3716

Gary Piper  
Appointed WSDA  
509-335-1947

Roger del Moral  
Appointed WSDA  
206-543-1942

Mr. Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
Post Office Box 3623  
Portland, Oregon 97208

RE: Managing Competing and Unwanted Vegetation  
Pacific Northwest Region D.E.I.S.

Dear Mr. Larsen:

Thank you for the opportunity to comment on the Region 6 D.E.I.S. We hope that the following comments might contribute to an effective Environmental Impact Statement and Vegetation Management Plan.

1. We see the need for a viable noxious weed control program as vital to Forest Service stewardship of the public lands that you control. Since the 1984 imposition of the moratorium on herbicide use on Forest Service lands, we have observed a proliferation of noxious weeds that, if allowed to continue to spread off of federal lands, threatens effective noxious weed control throughout the state.

The D.E.I.S. addresses a total vegetation management program that combines various programs that have differing goals and levels of public acceptance. We consider re-establishment of a noxious weed control program at the earliest possible date on Forest Service lands to be vital to our ongoing statewide program. We would ask that you therefore give highest priority consideration to splitting the D.E.I.S. into two parts, a "Noxious Weed E.I.S." and a "Silvacultural Competing Vegetation E.I.S." similar to what the Bureau of Land Management did. We feel that a "Noxious Weed E.I.S." would be subject to less opposition or controversy in its own right and would expedite establishment of a noxious weed control program.

2. The D.E.I.S. in Chapter 3, page 31, "Cooperation With Other Agencies," does not take into account that Chapter 438, Laws of 1987, as passed by the 50th Legislature Regular Session effective July 26, 1987, entailed a complete re-write of Chapter 17.10, Revised Code of Washington. Under a new statute, noxious weeds are being defined as Class A, Class B or Class C depending

# I/B Public Participation and Consultation

Harry Larsen  
Managing Competing & Unwanted Vegetation Pacific N.W.  
Region D.E.I.S.  
Page Two

on such factors as type of weed, densities, location within the state of Washington, and type of management action required.

We are attaching a copy of the proposed Class A, Class B and Class C noxious weed designations for the State of Washington. Final designations will be made following a public hearing scheduled for February 24, 1988. We recommend that the "Noxious Weed E.I.S." include a similar region-wide strategy list dependent on similar factors.

The D.E.I.S. combines the terms "control" and "contain" but does not specifically define either term. We recommend that specific definitions be established relative to your goals and priorities. We have statutory authority in RCW 17.10.010(5) to establish definition of "control"--to suppress or contain a noxious weed within a geographic area--and "prevent the spread of noxious weeds"--to forestall their introduction and/or spread in a geographic area--which we apply in specific situations to specific noxious weeds depending on their prioritization. Class A noxious weeds will be "eradicated"; Class B noxious weeds will be "controlled" in those designated regions of the state; individual counties will "prevent the spread of" non-designated Class B noxious weeds and those Class C noxious weeds that they prioritize within their counties.

3. The D.E.I.S. seems to key on single method treatments for noxious weed control in that, in a particular situation, you might consider herbicides, or mechanical methods, or manual methods. We would recommend expanding consideration to a multiple method approach. For example, you might have a Forest Service access road 10 miles in length that passes by a 120 acre clear cut and terminates at a 20-unit campground, all of which is heavily infested with tansy ragwort. Your management program might consist of 1) herbicide application adjacent to the roadway, 2) manual control (handpulling) in the campground area, and 3) establishment of biological controls (cinnabar moth) in the clearcut area.
4. Noxious weed control seems to be considered in its own right rather than as an integral part of each forest use. We recommend that a noxious weed assessment be a required provision of every management decision. For example, a timber sale would also include an assessment of noxious weeds existing on site; their potential for spread subsequent to the sale; areas to be disturbed by skidding, landing sites, and road construction, and their susceptibility to infestation by noxious weeds; and noxious weed infestations off-site that have potential to invade the site. A noxious weed control plan for the timber sale.

Mr. Gary Larsen  
Managing Competing & Unwanted Vegetation Pacific N.W.  
Region D.E.I.S.  
Page Three

would then be developed and implemented prior to the sale being bid. A similar process would be required for each forest use management decision such as grazing leases, recreational development, campground maintenance, fire rehabilitation, or whatever.

5. The D.E.I.S. refers to public participation, involvement and understanding as being essential to the vegetation management program. We recommend that this be expanded to first provide in-house training to all Forest Service personnel so that they become familiar with the noxious weed problem, recognize the seriousness and potential long-range impacts of noxious weeds, and realize the need for prevention, control or eradication of noxious weeds.

For example, if someone cruising timber happens onto a remote diffuse knapweed infestation, that employee needs to either be able to identify it or at least recognize it as a plant species that doesn't belong there. That employee also needs to know who to report the finding to so that appropriate follow-up can be initiated. Each Forest should have a staff person designated coordinator for these reports.

Once staff has received basic training in noxious weed control, efforts can then be made to establish a public information program. That program should also encourage forest visitors to report possible new infestations to Forest Service staff who, in turn, would pass each report on to the designated coordinator.

6. In addition to developing a program within each forest, we strongly recommend that coordination be established between all of the forests within Region 6 so that common goals and objectives can be identified and developed.

We would further recommend that this coordination be expanded to include other federal, state and local agencies. A critical component of Washington State's new A-B-C Noxious Weed list will be early identification and control or eradication of newly invading noxious weeds to the state or a region within the state. Coordination and cooperation with all land managers within the state is crucial to the program's success.

7. To develop a successful noxious weed control program within Region 6, we feel it is absolutely necessary that the Forest Service establish methods for surveying of noxious weeds, and also establish a system for data collection.



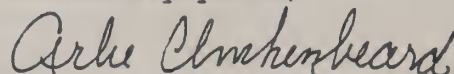
# I/B Public Participation and Consultation

Managing Competing & Unwanted Vegetation Pacific N.W.  
Region D.E.I.S.  
Page Four

8. Although each of the control methods cited in the D.E.I.S. is a useful tool in controlling noxious weeds under certain circumstances, we feel that the long-term solution must rely heavily on biological control. To that end, we recommend that the Forest Service establish a continuing funding level for research and development of biological control agents for noxious weeds.

Please don't hesitate to contact us if we can be of further assistance to you. In addition to the telephone numbers listed, you can write our Executive Secretary, Catherine Hovanic at P. O. Box 1064, Kent, Washington 98031, or call her at (509) 454-7230.

Sincerely yours,



Arlie Clinkenbeard  
Chairman

AC/amt

Attachments: Proposed Noxious Weed List  
Chapter 438, Laws of 1987

## List of State Official Letters

---

001265 Representative Bob Kintigh  
District 14  
Springfield, OR 97478  
Springfield, OR 97478

000783 Representative John Schoon  
7090 Zena Road  
Rickreall, OR 97371

001826 Representative Walt Schroeder  
Coos and Curry Counties  
95102 Rogue River Heights  
Gold Beach, OR 97444

000430 Representative Jolene Unsoeld  
Twenty-second District  
6110 Bluckthorn NW  
Olympia, WA 98502

000906 Representative Georgette W. Valle  
Thirty-fourth District  
1434 SW 137th  
Seattle, WA 98166

001070 Representative Liz VanLeeuwen  
Linn County, District 37  
27070 Irish Bend Loop  
Halsey, OR 97348

003892 Senator Mae Yih  
34465 Yih Lane NE  
Albany, OR 97321

# I/B Public Participation and Consultation

BOB KINTIGH  
DISTRICT 14

REPLY TO ADDRESS INDICATED:

☐ Senate Chamber  
Salem, Oregon 97310-1347  
☒ 38865 E Cedar Flat Road  
Springfield, Oregon 97478



OREGON STATE SENATE  
SALEM, OREGON  
97310-1347

001265

February 12, 1988

Mr. James Torrence, Regional Forester  
Forest Service, USDA  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Torrence,

Please allow me to offer the following comments of the USFS Vegetation Management Draft Environment Impact Statement.

I support Alternative B as the best of those you give but would like to see more emphasis on preventative management. This can mean less expense and less chemicals in the environment in the long run.

With hundreds of thousands of acres being withdrawn from production of forest products (and there seems to be no end in sight for withdrawals) I feel it is imperative that production be maximized on the remaining acreage. This is possible only if the land managers in the forest are permitted to use all tools available including burning and safe herbicides. Different methods or combination of methods may be needed on different sites and the manager should have this flexibility to use what in his professional judgement will produce the best results without endangering the environment.

The DEIS seems biased against herbicides and this tends to create negative public perception. This needs to be changed. You seem to be basing a forestry program on public perception of herbicide risks. In your assessment of human health risks have you compared the increase in cancer risk of each herbicide with cigarette smoking, drinking alcohol or eating salt? Such information is available and needs to be pointed out to the public.

Just a word of personal experience. I have been managing my own tree farm and nursery for over 30 years. We use many herbicides, fungicides and insecticides, always heeding recommended precautions. I am far healthier than most men of my age (66). However, I do refrain from high health risks such as smoking and drinking alcohol. We have raised 5 healthy children on the farm. Two of my sons work with me and are likewise in good health.

Please rewrite your statement, removing herbicide bias and basing it on scientific studies -- not on public perception. Forest management is a science and you have scientifically trained people in your organization. Please do a professional job. Don't base your decision on public perceptions.

Sincerely,

Bob Kintigh

## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

Immediate replanting would solve  
most problems.

Spray as needed after planting.

Thank you for asking.

*John Schoon*

REPRESENTATIVE JOHN SCHOON  
7090 ZENA ROAD  
RICKREALL, OR 97371



# I/B Public Participation and Consultation

WALT SCHROEDER  
COOS AND CURRY COUNTIES

REPLY TO ADDRESS INDICATED:

- ☐ House of Representatives  
Salem, Oregon 97310-1347  
☒ 95102 Rogue River Heights  
Gold Beach, Oregon 97444



001826

HOUSE OF REPRESENTATIVES  
SALEM, OREGON  
97310-1347

February 26, 1988

Mr. James Torrence  
Regional Forester  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Torrance:

I recognize that even the extended deadline is past for comments on the Draft Environmental Statement on Managing Competing and Unwanted Vegetation. But I noted that the form stated that late comments will still have impact.

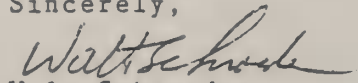
My background is with Oregon State University as a County Extension Agent for 34 years. During that time I was involved in many integrated pest management programs, including hand, biological and chemical controls of weeds, brush, insects, diseases, etc. I feel that each method has a place and we should not remove any tools from the "arsenal" unless better, more practical and more economical tools are available.

Herbicides are one of the tools. I urge you to adopt alternative B plus.

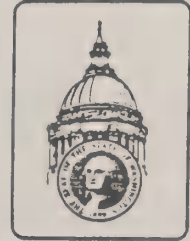
We live on the edge of a private forest holding. Our water supply is a spring just on our side of the property line. Several years ago the landowner, Champion Timberlands, helicopter sprayed their land with Garlon (Triclopyr). On hearing the helicopter, I went to our spring to see if any of the spray was entering our water supply. A young man was there with test papers on the ground in the area of our water supply. None of the spray landed on the test papers and I could feel no spray in the area even though the chopper was spraying close by. We felt perfectly safe in drinking the water.

Pesticides can be dangerous, but used properly they are safe and a valuable tool in vegetation management.

Sincerely,

  
Walt Schroeder  
State Representative  
Coos and Curry

000430



JOLENE UNSOELD  
TWENTY-SECOND DISTRICT

RESIDENCE  
8110 BUCKTHORN N.W.  
OLYMPIA, WA 98502  
206-866-8815

OLYMPIA OFFICE  
HOUSE OFFICE BLDG.  
OLYMPIA 98504  
206-786-7940

*House of Representatives*

STATE OF WASHINGTON

OLYMPIA

January 8, 1988

Gary Larsen  
Pacific Northwest Region  
USDA - Forest Service  
PO Box 3623  
Portland, Oregon 97208

Dear Gary:

I am concerned about the use of herbicides on Forest Service lands and have comments on the Draft Environmental Impact Statement on Vegetation Management. Of the seven alternatives examined in the draft EIS, only one, alternative D, would reduce or eliminate the need to spray herbicides or burn vegetation.

Alternative D stresses prevention of the need for herbicides by altering management practices. In addition, herbicides would only be used as a last resort after careful data gathering and monitoring. Alternative D also provides for important public participation in the planning of vegetation management projects.

The time has come for the Forest Service to actively work to reduce the use of herbicides. The public will no longer accept the risks to their health from the indiscriminate use of chemicals. The herbicides that are used must be carefully monitored and be screened for the least toxicity, leachability, and adverse environmental effects. Alternative D provides the framework for a wise and balanced approach to forest management.

Sincerely,

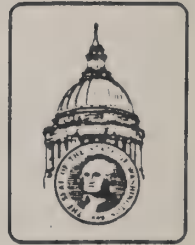
Jolene Unsoeld  
State Representative  
22nd Legislative District

JU:sc

GEORGETTE W. VALLE  
THIRTY-FOURTH DISTRICT

1434 S.W. 137TH 401 LEGISLATIVE BUILDING  
SEATTLE, WA 98166 OLYMPIA, WA 98504  
RESIDENCE TEL.: 248-0334 (206) 786-7952

34TH DISTRICT OFFICE  
1725 S.W. ROXBURY #5  
SEATTLE, WA 98108  
(206) 782-7154



*House of Representatives*  
STATE OF WASHINGTON  
OLYMPIA

January 11, 1988

Pacific Northwest Region  
USDA-Forest Service  
P.O. Box 3623  
Portland, OR 97208

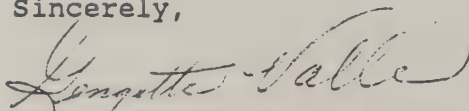
RE; The New Forest Service Vegetation Management EIS

Dear Concerned,

In response to information sent to me by the Northwest Coalition for Alternatives to Pesticides and the Western Washington Toxics Coalition, this is to advise that I think the Alternative D in the draft EIS is the best alternative. I agree with it being the only alternative that outlines vegetation management practices that will reduce or eliminate the perceived need to spray herbicides or burn vegetation.

I wish you success in the implementation of EIS. Please don't hesitate to contact me whenever I can be of service on issues that concern you.

Sincerely,

  
Georgette Valle  
State Representative

GV:lc

Valle (Wash.)  
VanLeeuwen (Ore.)  
001070

LIZ VanLEEuwEN  
LINN COUNTY  
DISTRICT 37

REPLY TO ADDRESS INDICATED:

- ☐ House of Representatives  
Salem, Oregon 97310-1347  
☒ 27070 Irish Bend Loop  
Halsey, Oregon 97348



Home Phone:  
369-2544  
Capitol Message:  
378-8772

HOUSE OF REPRESENTATIVES

SALEM, OREGON  
97310-1347

January 29, 1988

Mr. James Torrence  
Regional Forester  
Forest Service, USDA  
P.O.Box 3623  
Portland, OR 97208

Dear Mr. Torrence:

I have been following the vegetative management issue quite closely. Have studied your material --no, I've not read every page of the three-inches-thick documents, but I have a very good understanding of the proposals as I've been closely associated with vegetative management issues most of my life.

I have probably done more hand weeding with a hoe and shovel than 99% of people who are responding to this issue. I've also used chemicals. Yes, even 2,4,5-T when it contained lots more dioxin than in recent years. Not only did I mix it by hand, but I used it in a hand sprayer to eradicate poison oak on the hill where I lived. I was also pregnant. (That child is and has always been quite healthy as are her two children.) I can introduce you to other women who have had similar experiences and have had all healthy children and no miscarriages. The alleged rash of miscarriages in the Alsea area a number of years ago got lots of publicity, however, their miscarriage rate was no higher than the average. What was totally absent in all that ruckus was scientific data as to what chemicals these women's life styles exposed them to in addition to the very small and infrequent exposure they could have experienced from the herbicides used in forestry management. Remember that 2,4-D and 2,4,5-T are effective eradicators of broad-leaf plants including marijuana. Wood smoke, kerosene, alcohol, tobacco, herbs, cosmetics are all chemicals - why were these not examined ?? Lets quit jumping to conclusions and start using true scientific facts rather than responding to unscientific public pressure.

The dose on the amount of anything used makes a whale of a difference in the effect. For instance, when I eat an apple, core and all, I'm okay, BUT if I ate a half cup of apple seeds at one time, the larger dose of Prunasin could convert to hydrogen cyanide and could kill me. If I take one pill at a time it can make me well, the whole bottle however, would likely kill me. One teaspoon of salt for a baby is deadly.

I very much favor, and urge you to adopt, the alternative recommended by Oregonians For Food and Shelter which is known as "Alternative B+".



# I/B Public Participation and Consultation

"Alternative B+" allows some of the flexibility needed to manage vegetation in different situations. Herbicides are tools needed in certain situations to be able to produce a product which can compete in the market place. We need the flexibility of being able to use all methods of vegetative management to fit the varying conditions --- hand, fire, chemicals. All need to be used scientifically and as economically as is practical to produce a continuing supply of the natural resources which provide so much of the economic wealth for our state and its individual families.

A healthy people, a healthy forest, and a healthy economy should go hand in hand.

I will be most happy to discuss this issue with you in much greater detail if need be.

Sincerely,

A handwritten signature in cursive script, reading "Liz VanLeeuwen". The signature is written in dark ink and is positioned below the word "Sincerely,".

Liz VanLeeuwen, State Representative, District 37.

Dear Mr. Torrence, Regional Forester:

003892

Please consider the following concerns and comments as my personal response to the Draft Environmental Impact Statement on Managing Competing and Unwanted Vegetation released for public comment on October 15, 1987. Furthermore, I am requesting that you incorporate these important environmental and economic concepts into the USDA Forest Service, Pacific Northwest Region's Final Environmental Impact Statement and the Record of Decision.

THE BOXES CHECKED BELOW ARE OF CRITICAL IMPORTANCE TO ME.

☒ I support the "B PLUS" enhanced alternative for vegetation management. This modification of Alternative B emphasizes preventive management while allowing use of the most appropriate tool for treatment of site-specific problems. "B PLUS" provides Forest Service professionals the flexibility needed to assure a stable, long-term timber supply, effective rights-of-way maintenance, wildfire control, range improvements, and noxious weed control in a manner which responsibly protects the public health, worker safety, and the environment. Implementation of the "B PLUS" alternative will meet all reasonable public concerns and do so in an economically feasible manner.

☒ I do *NOT* support any current or future alternative which will REDUCE jobs; REDUCE revenues to counties for schools, roads and local government; REDUCE personal family income and DECREASE long-term timber production in this region. ECONOMIC IMPACT TO ME. MY FAMILY, MY NEIGHBORS, OUR BUSINESSES, OUR INDUSTRIES, AND OUR REGION IS OF VITAL SIGNIFICANCE.

☒ I feel the tone and language used in the DEIS is strongly biased against herbicides. The final draft should be more carefully written to eliminate such bias and protect against creating negative public perceptions itself.

☒ Forest acres which have been set aside for timber production should be managed for growth enhancement as well as seedling survival. Promoting growth enhancement will help ensure a reliable and adequate future timber supply from a shrinking production land base.

☒ It is unacceptable to *predetermine* that herbicides, or any other viable vegetation management tool, be used as a "last option" only—regardless of cost, effectiveness, safety, environmental impact or risks associated with the *other* options. The best method or tool should be used based on site-specific data and be evaluated by the same criteria or standards.

☒ The DEIS must provide a workable vegetation management program with adequate flexibility to deal with the tremendous differences in each of the 19 National Forests. I am concerned that too many assumptions are being made based upon a theoretical "average forest" which cancels out the individual extremes that exist in reality.

☒ I disagree with the major concept of basing a technical forestry program on weak, subjective data—public perception of herbicide risks and a qualitative risk assessment. This is contrary to other Forest Service regions and the data base required by law to register a pesticide with the United States Environmental Protection Agency.

☒ I support the inclusion of additional Forest Service research and monitoring programs on a forest-by-forest basis. Documenting the effectiveness and impact of various vegetation management methods is essential for proper evaluation and long-term planning.

☒ The alternative chosen should incorporate mitigation measures, such as site-specific diagnosis and analysis, to ensure that all relevant data and information are considered. Certain measures proposed in the draft, such as 100-ft. buffer strips along each side of year-round streams—no matter how small—and notification of *all* downstream residents prior to herbicide use, are overly restrictive, unwarranted and in most cases unworkable.

☒ I understand that there are important data which have been promised, but not yet made available to the public. This data includes an independent toxicological peer review, an independent silvicultural peer review and data on each individual forest—all of which are needed to perform an adequate and informed public review of the DEIS. I, therefore, support the formal request made by Oregonians for Food and Shelter and others to extend the public comment period to May 15, 1988.

OTHER COMMENTS: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

SIGNED Maeyih

NAME (PLEASE PRINT) MAE YIH

ADDRESS 34465 YIH Lane NE

CITY Albany STATE OR ZIP 97321

SENATOR MAE YIH  
34465 YIH LANE N.E.  
ALBANY, OR 97321



## List of County Letters

---

- 001203 Asotin County Noxious Weed Control Board  
P O Box 9  
Asotin, WA 99402  
Susan K. Williams, Supervisor
- 000023 Asotin County Conservation District  
725 6th Street  
Clarkston, WA 99403  
Dallas H. Dodd, Chairman
- 000682 Baker County Weed Control  
3050 E. St.  
Baker, OR 97814  
Jim Penland, Supervisor
- 001020 County Commission, Benton County  
180 NW 5th St.  
Corvallis, OR 97330-4777  
Dale Schrock, Chairman
- 001011 County Commission, Clallam County  
180 E. 4th  
Port Angeles, WA 98362  
Dorothy Duncan, Chair
- 000620 Clallam County P.U.D. No. 1  
P O Box 1117  
Port Angeles, WA 98362  
Michael McInnes, Superintendent
- 001372 County Commission, Curry County  
Box 746  
Gold Beach, OR 97444  
T.V. Skinner, Chairman
- 001009 County Commission, Douglas County  
Courthouse  
Roseburg, OR 97470  
Doug Robertson, Chairman



# I/B Public Participation and Consultation

- 000716 Ferry County Weed Control District  
P O Box 372  
350 E. Delaware  
Republic, WA 99166  
Carl Putnam, Chairman
- 000293 Garfield County Noxious Weed Control Board  
Courthouse, Box 190  
Pomeroy, WA 99347  
Jim McKeirman, Supervisor
- 000292 Garfield/Asotin Counties Crop Improvement Association  
2040 Evans Road  
Clarkston, WA 99403  
James F. Fitzgerald, President
- 001183 County Court, Grant County  
Courthouse, P O Box 220  
Canyon City, OR 97820  
Lorene Allen, County Judge
- 000189 Grant County Soil & Water Conservation District, Weed  
Control Program  
721 South Canyon Blvd.  
John Day, OR 97845  
Jerry Daske, Coordinator
- 001371 County Commission, Josephine County  
Courthouse  
Grants Pass, OR 97526  
William F. Ford, Chairman
- 000539 County Commission, Kittitas County  
205 W. 5th Ave.  
Ellensburg, WA 98926  
Roy A. Lumaco, Chairman
- 001024 County Commission, Klamath County  
Courthouse Annex, 305 Main St.  
Klamath Falls, OR 97601-6391  
Roger Hamilton, Chairman

- 000468 County Commission, Klickitat County  
205 S. Columbus, Room 101  
Goldendale, WA 98620  
Fred Holly, Chairman
- 000469 Klickitat County Noxious Weed Control Board  
228 W. Main St., Room 210  
Goldendale, WA 98620  
Bob Gorman, Weed Coordinator
- 000488 County Commission, Lake County  
Lakeview, OR 97630  
Arthur H. Sheer, Chairman
- 001035 Lake County Weed Control Committee  
Lakeview, OR 97630  
Gene Lawson, Chairman
- 000519 County Commission Lincoln County  
Norma McMillin, Chairman
- 004905 County Commission, Marion County  
Marion County Courthouse, 100 High Street NE  
Salem, OR 97301-3670  
Garry Kanz, Chairman
- 001012 Morrow County Weed Control  
P O Box 127  
Heppner, OR 97836  
Jim Van Winkle, Supervisor
- 001114 Okanogan County Noxious Weed Control Board  
P O Box 791  
Okanogan, WA 98840  
Craig Webster, Chairman
- 000352 County Commission, Polk County  
Polk County Courthouse  
Dallas, OR 97338-3174  
Bill Harland, Commissioner

- 000718 Tillamook County Weed Control  
2204 4th St., Suite B  
Tillamook, OR 97141  
Roger Pye
- 001018 Umatilla County Weed Control  
3920 Westgate  
Pendleton, OR 97801  
Mary K. Corp, Supervisor
- 001017 Umatilla County Soil and Water Conservation District  
1229 SE Third  
Pendleton, OR 97801  
Tom Straughan, Chairman
- 000899 County Court, Union County  
1100 "L" Avenue  
La Grande, OR 97850  
John J. Howard, County Judge
- 001113 County Court, Wallowa County  
P O Box E  
Enterprise, OR 97828  
LeRoy G. Childers, County Judge

001023



ASOTIN COUNTY  
NOXIOUS WEED CONTROL BOARD  
P.O. Box 9  
Asotin, Washington 99402  
Phone (509) 243-4898

7 January 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208



Dear Mr. Larsen:

After reviewing and considering the draft EIS, "Managing Competing and Unwanted Vegetation," the Asotin County Noxious Weed Control Board goes on record in support of Alternative B. We believe that, of the given alternatives, Alternative B has the greatest potential to accomplish the job of vegetation management and to meet the needs of Pacific Northwest residents.

It is the view of our board that sound noxious weed control by public and private land-owners is essential to our economy--agriculture is more profitable and tourism is enhanced when unwanted vegetation is managed properly. Regardless of strategy--prevention or correction--we believe that prompt action is needed before damage occurs. From experience, we find that adequate control of noxious weeds is extremely difficult, perhaps impossible, without the use of herbicides. In steep and/or inaccessible terrain, aerial application of herbicides is sometimes the only practical choice for controlling unwanted vegetation. Inasmuch as noxious weeds on Forest Service lands can be seed sources for weeds on private land, we believe that the Forest Service has the obligation, for its neighbors' sakes, to control noxious weeds in a timely and efficient manner. For these reasons, we find unacceptable those alternatives which involve "no action," "no herbicides," or "no aerial application permitted."

Our board is very concerned about developments over the past few years because of the court injunction against chemical weed control on public lands. Untreated noxious weed infestations have spread considerably on public lands and have been a source of weed infestation in our rangeland, especially with regard to diffuse knapweed. With so much time lost, larger and more costly corrective measures are needed than if the Forest Service had been able to manage the weeds promptly. We hope that similar "catch up" problems will not arise again. For the future we encourage coordination of Forest Service vegetation management with those local agencies who are responsible for right-of-way clearance, noxious weed control, etc. We also encourage the development of educational programs on prevention of the spread of noxious weeds.

Thank you for the opportunity to comment.

Sincerely,

*Susan K. Williams*

Susan K. Williams  
Supervisor





725 - 6th STREET • CLARKSTON, WASHINGTON 99403 • PHONE: 758-8012

January 8, 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Larsen

The Asotin County Conservation District is very concerned about the maintenance of permanent vegetative cover in our woodlands. This includes both established vegetation in areas not yet harvested, and vegetation being established in harvested areas.

The establishment of permanent vegetative cover in harvested woodland areas necessitates controlling unwanted annual and biennial competing vegetation. This permanent vegetation is absolutely necessary to reduce the amounts of sediment reaching county watercourses. We endorse alternative B because we think this will do the best job of maintaining the necessary vegetative cover.

In endorsing alternative B we feel it is very important for the future of herbicide control programs that all employees involved in application of chemicals be fully trained in the use and proper application of these chemicals.

Sincerely

Dallas H. Dodd  
C.D. Chairman

000682

## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

RECEIVED

TO: Mr. Gary Larsen

FROM: Baker County Weed Control

RE: Draft Environmental Impact Statement (DEIS)

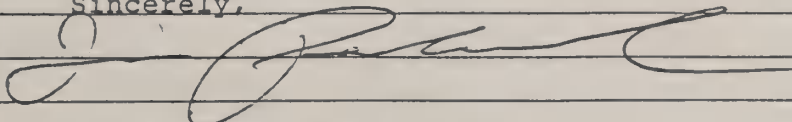
Mr. Gary Larsen:

Thank you for this opportunity to comment on the DEIS,  
competing and unwanted vegetation.

I found the DEIS to be both well-written and informative,  
and should be able to answer questions by those in the scientific  
and professional capacity, as well as the general lay person.  
Having been a Weed Control Supervisor on both sides of the Cascades,  
I've seen countless acres of prime agricultural, pasture, and  
recreational lands lost to competing and unwanted vegetation. Lands  
bordered by Federal land are often contaminated by seeds and  
roots of noxious weeds, and vice versa. This constant uphill  
battle is futile, and many more acres of productive land shall be lost  
if things remain as they are now.

Baker County Weed Control fully supports the U.S. Forest  
Services's efforts to once again resume the use of herbicides on  
its properties. We also agree that alternatives "B", "D", and "E"  
shall provide the best all-around solution.

Sincerely,



Name: Jim Penland, Supervisor

Address: Baker County Weed Control

3050 E St.

Baker, OR 97814



**BOARD OF COMMISSIONERS**

180 NW 5th Street  
Corvallis, OR 97330-4777

(503) 757-6800

January 7, 1988

Mr. James Torrence  
Regional Forester  
Pacific Northwest Region  
USDA Forest Service  
319 SW Pine, Box 3623  
Portland, OR 97208

**RE: Draft EIS for Managing Competing and Unwanted Vegetation**

Dear Mr. Torrence

The Benton County Board of Commissioners wish to offer the following comments on the **Draft EIS for Managing Competing and Unwanted Vegetation**. The County has based its review of the proposed alternatives on policies contained within the adopted and acknowledged Benton County Comprehensive Plan and an analysis of other County policies.

The County is quite concerned about the application of the various alternatives within the Siuslaw National Forest which is partially located within Benton County. Lumber mills within the County are heavily dependent on timber harvested on the Siuslaw. The recently released Siuslaw Forest Draft Management Plan indicated that during a 1982 survey period, 43% of mill resource consumption was from the Siuslaw. It is therefore the County's position that intensive silviculture management techniques, including vegetation control, be practiced wherever economically and environmentally possible in order to optimize forest yields and sustain timber demands and timber related employment and income within the County.

The County also has an interest in the preservation of the integrity and quality of water resources generated within municipal watersheds. The County supports limitations on vegetation control techniques within the Marys Peak Watershed which serves the City of Corvallis as established in the Marys Peak Planning Unit EIS (1979).

Among the alternatives presented within the Draft EIS, the County prefers the selection and implementation of Alternative G. Alternative G provides for more aggressive use of vegetation control techniques including biological methods, prescribed burning, manual and mechanical methods and the use of herbicide management, which would result in a 2.5 to 3.5% increase in long term sustained yields throughout the USFS Northwest Region.

The County believes that sustained yields within the Siuslaw may be able to achieve an even higher percentage increase due to the productivity of the Forest.

D0110/47

The County finds that the provisions of the Oregon Forest Practices Act for stream side buffers are more reasonable than those proposed in the plan. The County does not believe that the buffers required for USFS Class 3 and 4 streams are necessary. Overall, however the County finds the range of possible environmental effects to be within an acceptable range.

The County appreciates the opportunity to comment on the proposed plan. If you or your staff require any further clarification on the County's position, please do not hesitate to contact the Board's Office or the Benton County Development Department at 757-6819.

Sincerely,



Dale Schrock, Chairman  
Benton County Board of Commissioners

cc: U.S. Senator Mark Hatfield  
U.S. Senator Bob Packwood  
U.S. Representative Peter DeFazio  
U.S. Representative Denny Smith  
Governor Neil Goldschmidt  
Oregon Senator Cliff Trow  
Oregon Senator Mae Yih  
Oregon Representative Mike McCracken  
Oregon Representative John Schoon  
Oregon Representative Tony Van Vliet  
Tommy Thompson, Superintendent, Siuslaw National Forest  
City of Corvallis



## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

Mr. Larsen:

As representatives of a constituency which is acutely involved with the wood products industry in general, and Olympic National Forest in particular, we welcome this opportunity to comment on the Draft Environmental Impact Statement concerning the Management of Competing and Unwanted Vegetation.

After carefully considering the document, we concur with the Forest Service's preferred alternatives: B, E, and D. These alternatives seem to strike a balance between productive management for the wood products industry, and logical environmental controls to protect both the land and its users.

Based on our review, and the needs of our area, we would prefer that the alternatives be ranked B, E, and D, and that in the final determination of the plan to be implemented, consideration be given to this ranking.

We understand that future studies will provide additional data on the environmental impacts of various management techniques, and we charge the Forest Service with the responsibility to review existing procedures and implement practices consistent with the long-term preservation of a healthful environment.

Yours truly,

BOARD OF CLALLAM COUNTY COMMISSIONERS

*Dorothy Duncan*

Dorothy Duncan, Chair

*Lawrence Gaydeski*

Lawrence Gaydeski

*Dave Cameron*

Dave Cameron

223 E 4th  
Port Angeles, WA 98362

000620

## Response Form

NOV 27 1987

To be most helpful, we need your concise and thoughtful comments on:

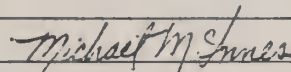
- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

Utilities should be allowed to implement brush and tree management programs of their own that do not environmentally conflict with the Forest Services program.

The utility may want to use mechanized or manual methods to remove unwanted or hazardous vegetation around power lines. Any herbicide applications by the utility should be consistent with acceptable Forest Service practice.

Alternative C would not be an acceptable alternative since brush and tree control near power lines must be a planned management program.

Alternative B would appear to offer the best flexibility to coordinate utility programs with Forest Service programs.



Michael McInnes, Superintendent

Clallam County P.U.D. No. 1

P. O. Box 1117

Port Angeles, WA 98362

CURRY COUNTY OREGON BOARD OF COMMISSIONERS

Thomas M. McKenzie

Rocky McVay

T.V. Skinner

BOX 746

GOLD BEACH, OREGON 97444

(503) 247-7011



Meck Arch on the Curry Coast

February 11, 1988

Jim Torrence, Regional Forester  
USDA Forest Service  
Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Torrence:

We, the Curry County Commissioners, are writing to you with our comments about the Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation. We feel the most logical approach is Alternative "B", to maintain at least the level of management prior to Judge Burns decision.

In reviewing the past management of vegetation over approximately forty years, we note much progress. There has been a positive development in the amount of management needed, development in mechanical uses, progress in the use of fire and the continued development of herbicides and their uses.

We strongly believe that the professional land manager needs all the tools available to him to meet the ever-increasing demands of the lands. We believe it is unwise to overly restrict any of the tools that a professional land manager needs to increase timber growth and availability on timber designated areas.

In the future there will be continued progress in the development of all means of vegetation management. Through professional management there will be continued progress in the best combination of these uses, provided a specific use is not unduly restricted so that progress is inhibited.

There are increased demands on the public lands, but there are also increased demands on the County governments to furnish services to the public. In Curry County we are very dependent on a public timber base to generate income for County uses and for schools. Counties are more and more looked upon to generate their own operating income as less Federal and State monies become available. Consequently, it is essential for timber dependent communities and areas to maintain as high a timber base as practical to meet the needs of community stability.

Despite the downplaying of impacts of restricted herbicide use in the draft statement, the social and economic impacts of all alternatives except B and G are significant to Curry County. It is true that on a national basis the impacts may seem small, but at the Curry County level the impacts are great.

We suspect that when the Siskiyou National Forest plan is completed, we will see decreases in the timber harvest of the past 20 years. The creation of stream-side management, visual areas, etc. ensure some Quasi-Wilderness. Some of the decreases may be made up with intensified forest management such as genetics, tree improvement programs, better stocking, better site preparation, and release through the best known methods including herbicides.

Loss of timber harvest, jobs, and County revenues from restricting vegetation management tools is by itself significant, but when added to reductions due to Spotted Owl and the proposed forest management plans of the Rogue River, Siskiyou, Siuslaw and the Willamette National Forests, the loss becomes truly devastating to the economy of Curry County.

As we understand the Judge's opinion on the Court ruling in 1984, the injunction was granted for legal technicalities, while the opinion stated that it was not shown that herbicides posed an unreasonable risk to man or the environment.

We believe that Alternative B, when used by professional land managers, will provide the tools necessary to maintain timber supplies and at the same time carefully manage any perceived health risk.

We are concerned about the statement in Alternative B that emphasizes opportunities to reduce the use of herbicides. We believe the emphasis should be on any opportunity to increase intensity of management. This should include the present



methods plus new developments including herbicides. As new methods of dealing with unwanted vegetation are developed, the final statement should clearly allow for these methods, including herbicides, to be brought into management procedures. The DEIS only allows use of 16 herbicides under Alternative B and says that new or additional herbicides must be approved by the EPA and reviewed by the Forest Service. It never says how this review will take place. Will a new EIS be necessary for each new herbicide that is developed? Will the same restrictions be applied to other methods?

Another concern is that procedures will be so restrictive that herbicide use will be impossible. Under herbicide mitigation procedures, it is stated that downstream water users and adjacent land owners who could be potentially affected, etc. We believe that "potentially" needs to be defined as well as downstream water users. Notification methods need to be explained. Also, it is stated that areas used for mixing herbicides and cleaning equipment shall be located where spillage will not run into surface waters or result in ground water contamination. Whenever practicable, mixing areas and heliports will not be located within domestic/municipal fish hatchery, or irrigation supply water sheds. We believe these statements are very restrictive in a narrow interpretation. For instance, almost any stream ultimately flows into all of the above categories. Perhaps one of the referred handbooks clarifies this concern, if so, it should be referred to --- if not, the intent of the statements needs to be clarified.

In Figure S-6, risk is presented as a risk of exposure to the public and risk of accidents to forest workers. These are presented so that they appear to be of the same relative magnitude. The risk of workers is much greater than risk to the public and placing them to appear relatively equal is deceptive.

Perceived health risk seems to be stressed heavily, even to the point of comparing between alternatives how much perceived risk the public will have. We believe the Forest Service can better change the perceived risk by educating the public than by selecting an alternative because it may have less perceived health risk.

Alternative D states that prevention of vegetation problems and integration of natural ecosystem processes will be used, but should be done under any vegetation management system, and will be if done by professional foresters.

In estimating timber yield losses from the various less intensive alternatives, the EIS assumes that the cost of doing

business and economic efficiency does not matter. In fact, to achieve acceptable results, mechanical and manual methods often cost five to ten times what herbicides cost. In these days of tightening Federal appropriations, it is only rational to use resources as efficiently as possible while managing public risk and employee risk.

Risk to the public is only presented as risk of exposure to herbicides and later the DEIS talks about all the bad effects of herbicides that have shown up in laboratory studies. The report never brings into perspective how infinitesimal the risk of these bad things happening to you is if you are exposed to herbicides at the level the general public is exposed even in a worst case scenario. Add to this that even in the most aggressive alternative the risk of public exposure is very minimal.

Alternative E eliminates aerial application of herbicides in the name of worker safety. However, aerial application is by far the safest method of herbicide application. The DEIS even shows that estimated injuries to workers is higher under Alternative E than any other alternative, except Alternative A which eliminates herbicides and focuses vegetation management on manual methods which have high danger to workers.

The statement is made on page A-6 that controlled experiments may tend to over-estimate yield losses so a conservative approach will be used in the Forest Service analysis. We don't think controlled experiments are any more apt to overstate than underestimate yield losses. No substantiation is given to the claim made there.

On page A-13 the statement is made that 25 to 50 percent yield reductions can be expected with no vegetation management in the Douglas-fir/Alder type. But, 25 percent is then used as the predicted reduction in long-term sustained yield levels. This seems to conservative too us. Fifty percent is more realistic, or why not use 37%?

We believe that the effectiveness of timber production under Alternative D is overstated. The Forest Service concludes that there will be only a 1-1/2 to 2% timber yield reduction compared to Alternative B, while 33% fewer acres will receive any vegetation management (533,100 in Alt. B vs. 356,700 in Alt. D). This doesn't seem reasonable. Even if we assume that other methods are as effective as herbicides, it doesn't seem reasonable to get only 2% yield loss with 33% fewer acres treated unless we are treating acres in Alternative B that do not need treated. If we can prevent vegetation from becoming a

# I/B Public Participation and Consultation

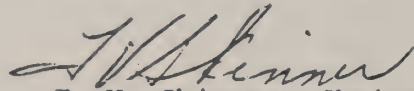
problem as Alternative D assumes, why can't we do this under any alternative?

Overall, we believe that the Forest Service is definitely understating the reduction in timber production from loss of herbicides and from the implementation of Alternatives D and E which use considerably less herbicides than Alternative B.

We write this letter to point out the opportunity of the Forest Service to support and lend stability to the communities of Curry County. We believe Alternative "B" is a reasonable alternative to ask for in soliciting your support. Any critique we've made is to help improve the draft so the Forest Service can intensify timber management in a positive way as soon as possible. We appreciate the opportunity to comment and the openness of your planning process.

Sincerely,

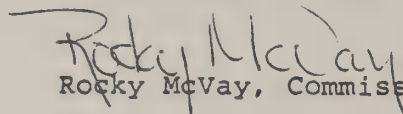
BOARD OF COMMISSIONERS  
of CURRY COUNTY, OREGON



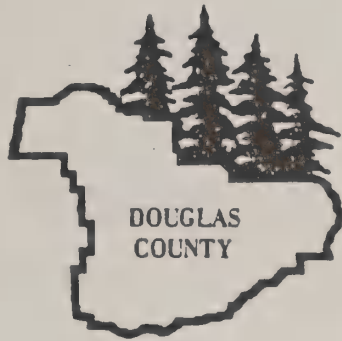
T. V. Skinner, Chairman

Approved but not present to sign:

Thomas M. McKenzie, Commissioner



Rocky McVay, Commissioner



## BOARD OF COMMISSIONERS

DOUG ROBERTSON

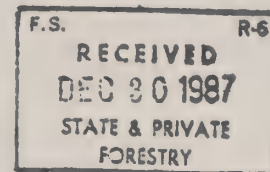
BILL VIAN

DORIS WADSWORTH

Courthouse - Roseburg, Oregon 97470 - (503) 440-4201

December 21, 1987

Jim Torrence, Regional Forester  
USDA Forest Service  
Pacific Northwest Region  
PO Box 3623  
Portland, OR 97208



Dear Mr. Torrence:

We, the Douglas County Commissioners, are writing to you with our comments about the Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation. We feel the most logical approach is alternative "B" or to maintain at least the level of management prior to Judge Burns' decision.

In reviewing the past management of vegetation over approximately forty years, we note much progress. There has been a positive development in the amount of management needed, development in mechanical uses, progress in the use of fire and the continued development of herbicides and their uses.

We strongly believe that the professional land manager needs all the tools available to him to meet the ever-increasing demands of the lands. We believe it is unwise to overly restrict any of the tools that a professional land manager needs to increase timber growth and availability on timber designated areas to counter decreases of timber availability on Wilderness and other restricted availability areas.

In the future there will be continued progress in the development of all means of vegetation management. Through professional management there will be continued progress in the best combination of uses, provided a use is not unduly restricted so that progress is inhibited.

As there are increased demands on the public lands, there are also increased demands on the County governments to furnish services to the public. In Douglas County we are very dependent, probably the most dependent County in Oregon, on a public timber base to generate income for County uses. Counties are more and more looked upon to generate their own operating income as less Federal and State monies become available. Consequently, it is essential for timber dependent communities and areas to maintain as high a timber base as practical to meet the needs of the public.



# I/B Public Participation and Consultation

## Environmental Impact Statement

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Page 2

A review of the impacts of restricted herbicide use on timber harvest in the Umpqua National Forest indicate the following per year impacts:

Alternative D - approximately 5.3% reduction or a reduction of approximately 18.5 million board feet.

Alternative E - approximately 14% reduction or a reduction of approximately 41 million board feet.

Alternative B - the base alternative with no increase or decrease.

Alternative A - approximately 3.5% reduction or a reduction of approximately 12.5 million board feet.

Alternative C - approximately 56% reduction or a reduction of approximately 196 million board feet.

Alternative F - approximately 6.3% reduction or a reduction of approximately 22 million board feet.

Alternative G - approximately 2% increase or an increase of 7 million board feet.

Despite the downplaying of these impacts in the draft statement, the social and economic impacts of all alternatives except B and G are significant to Douglas County. It is true that on a national basis the impacts may seem small, but at the Douglas County level the impacts are great. Just how great the impacts on the County might be will need to be analyzed when the new forest plan for the Umpqua National Forest is released.

We feel reasonably sure that when the Umpqua National Forest plan is released, we will see significant decreases in the timber harvest of the past 20 years. If nothing else, the creation of Wilderness, stream-side management, visual areas, etc. have accounted for decreases. Some of the decreases can be made up with intensified forest management such as genetics, tree improvement programs, better stocking, better site preparation, and release through the best known methods including herbicides.

Loss of timber harvest, jobs, and County revenues from restricting vegetation management tools is by itself significant, but when added to reductions due to Spotted Owl and the proposed forest management plans of the Rogue River, Siskiyou, Siuslaw and the Willamette National Forests, the loss becomes truly devastating to the economy of Douglas County.

As we understand the Judge's opinion on the Court ruling in 1984, the injunction was granted for legal technicalities while the opinion stated that it was not shown that herbicides posed an unreasonable risk to man or the environment.

Environmental Impact Statement

December 20, 1987

Page 3

We believe that Alternative B, when used by professional land managers, will provide the tools necessary to maintain timber supplies and as methods become better or more efficient, to provide the possibility to progress towards Alternative G.

We do have some concerns about how the Region as a whole might look at the use of herbicides in the Region as a whole. It appears that approximately 70% of herbicide use is on about four forests in southwest Oregon, one of which is the Umpqua National Forest. Our concern is that our area be given the weight it deserves in the assessment leading to the final statement.

We are concerned about the statement in Alternative B that emphasizes opportunities to reduce the use of herbicides. We believe the emphasis should be on any opportunity to increase intensity of management. This should include the present methods plus new developments including herbicides. As new methods of dealing with unwanted vegetation are developed, the final statement should clearly allow for these methods, including herbicides, to be brought into management procedures. The DEIS only allows use of 16 herbicides under Alternative B and says that new or additional herbicides must be approved by the EPA and reviewed by the Forest Service. It never says how this review will take place. Will a new EIS be necessary for each new herbicide that is developed? Will the same restrictions be applied to other methods?

Another concern is that procedures will be so restrictive that herbicide use will be impossible. Under herbicide mitigation procedures, it is stated that downstream water users and adjacent land owners who could be potentially affected, etc. We believe that "potentially" needs to be defined as well as downstream water users. Also how notifications are to be made. Also, it is stated that areas used for mixing herbicides and cleaning equipment shall be located where spillage will not run into surface waters or result in ground water contamination. Whenever practicable, mixing areas and heliports will not be located within domestic/municipal fish hatchery, or irrigation supply water sheds. We believe these statements are very restrictive in a narrow interpretation. For instance, almost any stream ultimately flows into all of the above categories. Perhaps one of the referred handbooks clarifies this concern, if so, it should be referred to --- if not, the intent of the statements needs to be clarified.

In Figure S-6, risk is presented as risk of exposure to the public and risk of accidents to forest workers. These are presented so that they appear to be of the same relative magnitude. The risk to workers is much greater than risk to the public and placing them to appear relatively equal is deceptive.

Perceived health risk seems to be stressed heavily, even to the point of comparing between alternatives how much perceived risk the public will have. We believe the Forest Service can better change the perceived risk

# I/B Public Participation and Consultation

## Environmental Impact Statement

December 20, 1987

Page 4

by educating the public than by selecting an alternative because it may have less perceived health risk.

Alternative D states that prevention of vegetation problems and integration of natural ecosystem processes will be used, but this should be done under any vegetation management system.

In estimating timber yield losses from the various less intensive alternatives, the EIS assumes that the cost of doing business and economic efficiency does not matter. In fact, to achieve acceptable results, mechanical and manual methods often cost five to ten times what herbicides cost; the Forest Service budget is a limiting factor. In these days of tightening Federal appropriations, it is only rational to use resources efficiently.

Risk to the public is only presented as risk of exposure to herbicides and later the DEIS talks about all the bad effects of herbicides that have shown up in laboratory studies. The report never brings into perspective how infinitesimal the risk of these bad things happening to you is if you are exposed to herbicides at the level the general public is exposed even in a worst case scenario. Add to this that even in the most aggressive alternative the risk of public exposure is very minimal.

All of the herbicides used in the forest are used in agriculture to help produce the food we eat and the clothes we wear. Most of these herbicides are also used in residential lawns and gardens. In the forest a herbicide may be used from one to three times over the 50-120 year life of a managed forest, but in agricultural and lawn and garden situations the same herbicides are used as often as twice a year or more every year that the crop is cultivated. The amount of herbicides sprayed in our forests each year is a very small percentage of the amount used in agriculture; for industrial, transportation and utility rights-of-way; and in residential lawns and gardens. Why do we perceive a risk from forest herbicide spraying, but not from all other uses of herbicides?

Alternative E eliminates aerial application of herbicides in the name of worker safety. However, aerial application is by far the safest method of herbicide application. The DEIS even shows that estimated injuries to workers is higher under alternative E than any other alternative, except alternative A which eliminates herbicides and focuses vegetation management on manual methods which have high danger to workers.

The statement is made on page A-6 that controlled experiments may tend to over-estimate yield losses so a conservative approach will be used in the Forest Service analysis. We don't think controlled experiments are any more apt to overstate than underestimate yield losses. No substantiation is given to the claim made there.

On page A-13 the statement is made that 25 to 50 percent yield reductions can be expected with no vegetation management in the Douglas-fir/Alder

**Environmental Impact Statement**

December 20, 1987

Page 5

type. But, 25 percent is then used as the predicted reduction in long-term sustained yield levels. This seems too conservative to us. Fifty percent is more realistic, or why not use 37%?

The volume losses associated with no vegetation management and no herbicides in the salmonberry vegetation type are way too low. They seem to be assuming that they will get adequate site preparation and be planting in 0-year old brush fields. Adequate site preparation is difficult to achieve in the salmonberry type. Even using fire and herbicides together, the site preparation is often less than satisfactory, on the north slopes where this type is commonly found. To conclude that there is no yield loss without the use of herbicides in this type is not realistic. Even with the irrational assumption that cost is not limiting, salmonberry cannot be adequately controlled by mechanical, manual and thermal methods and stocking will be severely reduced where salmonberry is not controlled adequately.

We believe that the effectiveness of timber production under Alternative D is overstated. The Forest Service concludes that there will be only a 1-1/2 to 2% timber yield reduction compared to Alternative B, while 33% fewer acres will receive any vegetation management (533,100 in Alt. B vs. 356,700 in Alt. D). This doesn't seem reasonable. Even if we assume that other methods are as effective as herbicides, it doesn't seem reasonable to get only a 2% yield loss with 33% fewer acres treated unless we are treating acres in Alternative B that do not need treated. If we can prevent vegetation from becoming a problem as Alternative D assumes, why don't we do this under any alternative?

Overall, we believe that the Forest Service is definitely understating the reduction in timber production from loss of herbicides and from the implementation of Alternatives D and E which use considerably less herbicides than Alternative B.

We write this letter to point out the opportunity of the Forest Service to support and lend stability to the communities of Douglas County. We believe that Alternative "B" is a reasonable alternative to ask for in soliciting your support. Any critique we've made is to help make the draft



**I/B** Public Participation  
and Consultation

**Environmental Impact Statement**

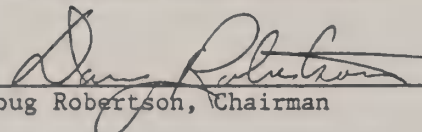
December 20, 1987

Page 6


better so that the Forest Service can intensify timber management in a positive way as soon as possible. We appreciate the opportunity to comment and the openness of your planning process.

Sincerely,

BOARD OF COUNTY COMMISSIONERS  
OF DOUGLAS COUNTY, OREGON

  
Doug Robertson, Chairman

  
Bill Vian, Commissioner

  
Doris L. Wadsworth, Commissioner

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DEC 21 1987

/jldl  
envirimp.drf

# Ferry County Weed Control District

P.O. Box 372  
350 E. Delaware  
Republic, Washington 99166

January 7, 1988

Gary Larsen  
Vegetation Management Group Leader  
U.S.D.A. Forest Service  
Pacific N.W. Region  
P.O. Box 3623  
Portland, OR 97208

Subject: Comment on N.W. Region 6 D.E.I.S. on Managing Competing  
and Unwanted Vegetation

Dear Mr. Larsen:

We, the members of the Ferry County Weed Board, would like to address what we feel are several opportunities for the U.S.F.S. to improve the Northwest E.I.S. We bear the responsibility through Washington State R.C.W. 17.10 laws to oversee control of noxious weeds on land in Ferry County. Much of our county is Federal Land, either Bureau of Reclamation, Bureau of Indian Affairs, Bureau of Land Management, National Parks Service, Corps of Engineers, or U.S. Forest Service. We coordinate control programs among public agencies and private individuals. Since 1984, the U.S.F.S. has been the weak link in our coordinated containment programs as they are unable to use herbicides and without this tool they have been unable to contain noxious weeds as other agencies and individuals have. The U.S.F.S. has the responsibility by the laws: The Carlson Foley Act (43 USC 1241 et sec) and the Federal Noxious Weed Control Act of 1974 (7USC 2801 et sec to carry out noxious weed control.

We feel a highest priority would be to split the DEIS into a "Noxious Weed EIS" and a "Silvicultural Competing Vegetation EIS" much as the BLM has successfully done. This would separate two completely different programs with different goals and levels of public acceptance. This would expediate passage of the Noxious weed EIS so as to allow containment action earlier as we are literally "losing ground" at an increasing rate as we wait.


If splitting the EIS is not feasible at this time, then we feel much more emphasis should be put on noxious weed control in this EIS.

We feel that to be charged with the stewardship, as the U.S.F.S. is, then all tools must be available for use including biological, cultural and chemical. Environmental conditions vary from site to site and the choice of methods of control will vary accordingly.

Therefore, we support alternatives B or G as the U.S.F.S. must have all tools available at its disposal if it is to preserve the environmental quality of wildlife habitat, recreational areas, and native plant species. Without control of noxious weeds, a monoculture of foreign weeds occupy the once niches of native species, thus disrupting the food chain of the area. The worst case scenario would be to do nothing and allow noxious weeds to continue to spread. All forest users and wildlife would suffer.

Sincerely,

Ferry County Weed Board



Carl Putnam  
Chairman

cc Ed Schultz  
cc Gus Nichols  
cc Art Losey  
cc Georgia Hoglund

COOPERATIVE EXTENSION / GARFIELD COUNTY  
Washington State University

Courthouse, Box 190, Pomeroy, Washington 99347 / 509-843-3701

January 11, 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA FS, PNW Region  
P. O. Box 3623  
Portland, OR 97208

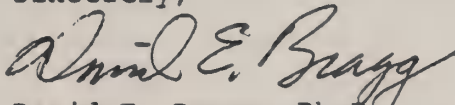
Dear Mr. Larsen:

As executive secretary of the Garfield County Noxious Weed Control Board, I am writing to indicate our support for Alternative B.

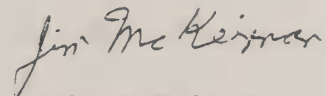
We have come to this decision after reviewing the draft EIS, "Managing competing and Unwanted Vegetation".

The Garfield County Board has long encouraged the Pomeroy Ranger District to control invading noxious weeds. We have been very concerned in recent years under the restraining order preventing chemical control of these weeds. The nature of the Blue Mountains makes mechanical control of many weed sites impractical.

Sincerely,



David E. Bragg, Ph.D.  
Secretary & ex officio member  
County Extension Chairman



Jim McKeirnan  
Supervisor,  
Garfield County  
Noxious Weed Board

DEB:hs



I/B Public Participation  
and Consultation

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JAN 14 1988

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JAN 14 1988

January 10, 1988

Garfeild/Asotin Co. Crop. Improv. Assoc.  
c/o James F. Fitzgerald  
2040 Evans Road  
Clarkston, WA. 99403

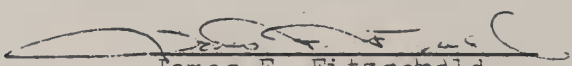
Gary Larsen  
Vegetation Management Group  
USDA Forest Service, PNW Region  
P.O. Box 3623  
Portland, Oregon 97208

Dear Mr. Larsen:

Upon extensive review and discussion of EIS entitled "Managing Competing and Unwanted Vegetation" the Garfeild/Asotin County Crop Improvement Association would lend its support to alternative "B". Alternative "B" would best control the objective if conducted in a timely and responsible manner. We can not over stress the importance of weed control on Forest Service Lands as the spread and contamination of clean crop grounds could be detrimental to the seed producing industry in Washington.

Thank you for the opportunity to comment.

Sincerely,

  
James F. Fitzgerald,  
President

cc: Asotin Co. Noxious Weed Board  
jff

001183

## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

I have read the summary of the DEIS, Manageing Competing and Unwanted Vegetation, and browsed through the supporting documents.

I will address only those issues of which I have knowledge, that occur in National Forests on the eastside.

I agree with the trend to use fire as vegetation control. I believe that for too long fires have been suppressed, to the detriment of the health of the forest. Fire should continue to be used to control underbrush and for some slash disposal. I did not see other methods of slash disposal addressed. On our rather thin soils in eastern Oregon consideration should be given to chipping or chopping, or otherwise reducing the bulk, but leaving the duff on the ground to decay.

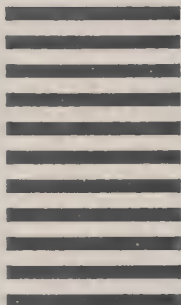
Aside from underbrush and slash, we have the entirely different problem of noxious weeds. Grant County is a weed control district, and the county and various landowners invest a considerable sum in noxious weed suppression each year. I don't know if we will ever get a handle on noxious weeds, however, for several reasons: There are always some landowners for whom this is not a priority, and whose control on their own land is less than aggressive.

The restriction on herbicides on public land for the last several years has allowed noxious weeds to spread unchecked on those lands. Perhaps of greatest importance, noxious weeds are often spread by way of streams and waterways. With no allowance for any but mechanical or manual means of attacking such weeds within a riparian zone, this source alone may ultimately defeat all other efforts to control noxious weeds on agricultural lands.

I notice that this restriction remains against use of herbicides within riparian zones in all your alternatives. We would welcome any suggestions.

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Vegetation Management Team  
Pacific Northwest Region  
P. O. Box 3623  
Portland, Oregon 97208

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Finally, addressing the choice of alternatives: I favor alternative  
B, with options left open. I encourage the Forest Service to work  
with the Counties and local landowners in forming plans for control  
of noxious weeds in specific areas.

Thank you for this opportunity to comment.

Lorene Allen

County Judge, Grant County

000189

Jerry Daake, Coordinator  
Weed Control Program  
Grant Soil and Water Conservation District  
721 South Canyon Boulevard  
John Day, Oregon 97845

January 13, 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P. O. Box 3623  
Portland, Oregon 97208

Sir:

I support Alternative G for vegetation management. I feel this alternative gives the Forest Service personnel the best latitude of freedom, of all the alternatives, to adequately manage the unwanted vegetation. It appears to be the only alternative with a positive effect on the majority of the issues addressed by the various alternatives. Granted the risk to the public and the workers is increased; however, when weighed against the positive benefits derived from the "Job" and "Financial" increases I feel this is an acceptable risk. All the other alternatives, when compared to the "Reference B", show a Human Health factor increase, quite sizable in most cases, against a loss of benefits to the economic community. As for the Environmental Effects, I feel the level of reduction in "G" to be acceptable.

I cannot support any alternative that is less than a strong statement for reduction of the noxious weed problems in our County. Grant County consists of 2.9 million acres, 65% of which is under Federal jurisdiction; primarily the Forest Service. It is extremely difficult to enforce the Oregon Noxious Weed Laws on private lands when just over the fenceline the Federal land is supporting a healthy seed crop.

Unless I do not understand the directions given in the criteria for the alternatives, the riparian areas were exempted from any vegetative control work. If this is so; it is totally unacceptable. The water ways in Grant County are one of the major conduits for the spread of noxious weed seed. The riparian areas cannot be exempted or source control of noxious weeds is impossible. In that event an effective noxious weed control program of the surrounding area will be severely handicapped. We cannot control noxious weeds by treating the effect; we must go to the cause. I realize the concerns for protecting our water sources but we cannot just ignore them and hope for the best. This is one area where, if nothing else can be allowed, a vigorous manual control program must be pursued.

I believe a good system of monitoring the vegetative programs on the various Forests is an absolute must. One of the most promising concepts of monitoring vegetation is the utilization of color infra-red or satellite imagery. It is a method that should be developed rapidly. The public conception of the risks and dangers involved with herbicide usage is critical to any program on public lands. The only way to modify or completely change this conception is with good factual data.



# I/B Public Participation and Consultation

Page 2, Veg/Mgt, 1/13/88

Biological Control usage should be an intricate part of vegetation management. It is a good tool to assist in management but will never be the total control solution. The characteristic of seeds maintaining viability while lying dormant for many years precludes any biological control from ever doing more than keeping vegetation in an endemic population, at best. Unfortunately, among weeds at least, many of the species are exotics and the control must be located and acclimated, if possible, before we can even hope for a established resident population strong enough to make a dent in the weed population. If only the predator were as versatile as the prey.

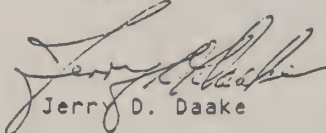
Manual methods, while being effective in some situations on a short term basis, are not cost effective and, in my experience, are generally ineffective for any long term control. Again, they should still be utilized in riparian areas and other such areas of critical concern.

Judicious use of fire and chemicals are by far the most effective and cost efficient methods of controlling vegetation in our varied terrain. Granted there are some health factors involved but generally these can be greatly reduced with proper training, supervision and diligence. We must never allow the removal of these useful management tools from our programs.

I understand the necessity of the Forest Service in trying to find a Regional solution to rectify the Court ordered moratorium of herbicide usage on our National Forests. But I cannot accept that vegetation on 19 National Forests, scattered over 2 states, can be effectively controlled when working under a single inflexible control policy. There are simply too many variables pertaining to the vegetative problems throughout the Region for any alternative that does not give total flexibility to every Ranger District to cope with their particular set of difficulties.

I would be pleased to renew our cooperative programs with all of the National Forests located within the County as soon as the we can. Our County Weed Program has suffered substantially from the herbicide moratorium on the Federal lands.

Sincerely,



Jerry D. Daake

# JOSEPHINE COUNTY OREGON

148100

001371

Board of Commissioners

WILLIAM F. FORD

HAROLD L. HAUGEN

BRUCE M. MCGREGOR

James H. Boldt, Legal Counsel



(503) 474-5221



COURTHOUSE

GRANTS PASS, OREGON 97526

February 12, 1988

Ron McCormick  
Siskiyou National Forest  
200 N.E. Greenfield Road  
Grants Pass, Oregon 97526

RE: Response to the Proposed Draft Environmental Impact Statement for  
Managing Competing and Unwanted Vegetation

Dear Ron:

Josephine County has reviewed the Draft Environmental Impact Statement (draft EIS) of the 19 National Forests in Region VI, and as part of the public input process, would offer to you our comments and recommendations.

It is regrettable that specific data supplied for the Region as a whole was not also provided for the Siskiyou National Forest and the Rogue River National Forest in particular, as it would have proven helpful in analyzing impacts of the different alternatives to Josephine County. Nevertheless, through an extrapolation process, coupled with input from your staff, we have formulated what we believe to be an accurate assessment of impacts to Josephine County, and thus, an appropriate response.

The economical importance of National Forest lands that lie in close proximity to the various communities in Washington and Oregon, including the Siskiyou and Rogue National Forests and their associated communities, is historical and well documented. Some of these communities owe their very existence to a Forest Service presence.

As we all are only too well aware of, the timber industries of Southwest Oregon provide the economic platform upon which the rest of the regions service businesses are built. We do not have the business diversity many other metropolitan areas enjoy. As a result, any shifts downward in the supply of raw materials that supports these timber related industries causes severe detrimental effects to the regions entire economy. This economic concept is the very fabric that ties our community together. Economic upheaval causes a ripple effect that is felt all the way down into the family structure. These are not pleasant realities, and we do have it within our abilities to prevent this.

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Suppl. Serv.	
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Hd. Develp.	
Hd. Mgmt.	
Eng. Mgt.	

# I/B Public Participation and Consultation

Ron McCormick  
Siskiyou National Forest  
February 12, 1988  
Page 2

Recently, the Forest Service circulated a Draft Environmental Impact Statement (draft EIS) of its Forest Plan for the next ten years. As with this Vegetation Management position paper, we gave comment and recommendations that recognized producing a better mix of the forests resources than the Forest Service's Preferred K Alternative. The Forest Plan identified a certain level of raw material (in the case of the Preferred Alternative, it was 150 MMBF) output in the form of an annual Allowable Sale Quantity. This Allowable Sale Quantity is dependent upon the Forest Service having at its disposal, the silvicultural tools they need to professionally do their job. These tools and their availability are described in the Alternatives.

It is our understanding that the Forest Service's position concerning the Alternatives at this point in time is to give preferred consideration to Alternatives B, D and E. However, this preferred status does not mean elimination of the other Alternatives.

From a County perspective, Alternative A, Alternative C, and Alternative F lack any redeeming qualities and we categorically reject these. They are counter-productive and would be quite damaging to local communities. Alternative E is also unacceptable because of the restrictions imposed on the use of herbicides. The Siskiyou National Forest is composed of very rugged and steep terrain. Hand applications are not practical or economical in many instances, whereas treatments using aerial methods would be.

Alternative D, a Forest Service preferred Alternative, depends upon using an advanced "Integrated Pest Management" concept with the "prevention of vegetation management problems" as its central concept. The emphasis here is solving vegetation problems by not using herbicides or by managing in such a way as to preclude or prevent any future vegetation problems. Although on the surface this concept seems to contain certain elements of desirability, we believe that it does not adequately define at what level herbicides would or would not be used. This sets up the probability of almost certain confrontations with environmental groups, as experienced in the past. We also note in our closing remarks on this Alternative that it will decrease jobs, decrease personal income, decrease long term sustained yield capability, decrease receipts to local schools and governments, and reduce those acres currently suitable for the production of timber, thus a decrease in Allowable Sale Quantity. None of the above reductions fit in with our concept of maintaining community economic stability, therefore, we cannot support them.

In taking a look at Alternative G, it is our impression that too much effort would be going into the management of lands that are unsuitable for intensive forest management, which at this time, in our opinion, is not warranted.

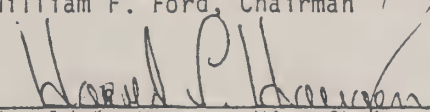
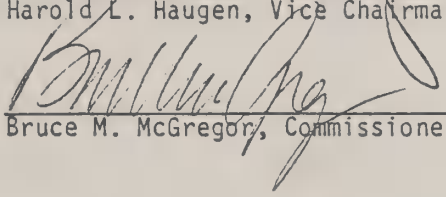
Of the seven Alternatives proposed, only Alternative B approximates what we see as an adequate level of support activities that address our concerns. The mixing and matching of the various available tools to control unwanted vegetation is being carefully assessed and implemented on the ground so as to obtain the most effective, safest, and economically defendable results possible. This represents responsible forest management.

Ron McCormick  
Siskiyou National Forest  
February 12, 1988  
Page 3

We would also like to say that we are encouraged that a monitoring system is in place to ensure that all projects meet with anticipated results, and that any new technology is being incorporated into the plan.

Thank you for this opportunity to express our view.

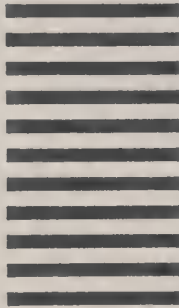
JOSEPHINE COUNTY  
BOARD OF COUNTY COMMISSIONERS

  
\_\_\_\_\_  
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FOREST SERVICE, USDA  
Vegetation Management Team  
Pacific Northwest Region  
P. O. Box 3623  
Portland, Oregon 97208

1215  
COUNTY COMMISSIONER-KITTITAS CO  
5TH & MAIN  
ELLENSBURG, WA 98926

The Kittitas County Board of Commissioners respectfully request  
that special care be taken by all agencies to properly manage competing  
and unwanted vegetation and attempt to prevent distribution by air or  
water.

Sincerely,

*Roy A. Lumaco*

ROY A. LUMACO, Chairman  
Kittitas County Board of Commissioners  
205 W. 5th Ave.  
Ellensburg, WA 98926

001024

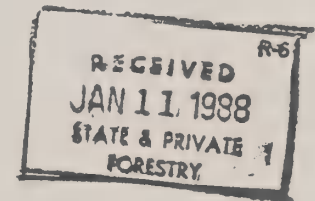


# Klamath County - Board of Commissioners

COURTHOUSE ANNEX — 305 MAIN ST. — 503-883-5100 — KLAMATH FALLS, OREGON 97601-6391

January 6, 1988

Mr. Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service  
P.O. Box 3623  
Portland OR 97208



Re: Managing Competing and Unwanted Vegetation

Dear Mr. Larsen:

The Klamath County Commissioners believe the most logical approach to the above mentioned problem is Alternative "B". This would at least maintain the management level prior to the Judge Burns decision.

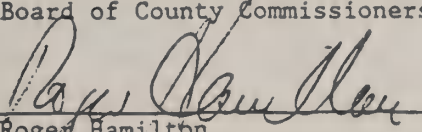
In reviewing past management practices, many new and innovative methods have been tried. Mechanical control and use of fire may be good in some areas, but have proven very costly resulting in many areas going untreated.

We believe professional land managers need all tools available for them to meet the ever increasing demand on federal lands. If this option is not at their disposal, reduced timber production could result. Klamath County could lose jobs and federal receipts as a result. We look strongly to a stabilized forest industry to ensure a healthy timber-related economy.

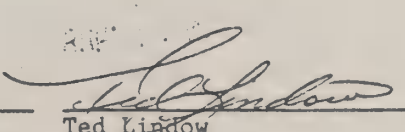
Most east side forests do not regularly use herbicides to combat unwanted vegetation, but this brings up a very serious problem directly related to herbicide use - noxious weeds. Much of the irrigation water used in Klamath County originates on federal lands. We can track many noxious weed sources to these federal lands. Klamath County has a weed control ordinance. It becomes almost impossible to enforce this ordinance when across the fence, federal land managers make little effort to control these noxious weeds. We have excellent cooperation from district rangers and area managers but their hands are tied by restrictions and lack of funds. Some of our most productive farm lands border these federal lands. Controlled herbicide use is the only efficient method to keep these pests from encroachment. Alternative "B" with the controlled use of herbicides and adequate funding would go a long way in resolving this serious problem.

Sincerely,

Board of County Commissioners

  
Roger Hamilton  
Chairman of the Board

  
Jim Rogers  
County Commissioner

  
Ted Lindow  
County Commissioner

/dav

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## KLICKITAT COUNTY COMMISSIONERS

205 S. Columbus, Room 101  
Goldendale, Washington 98620

January 13, 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P. O. Box 3623  
Portland, OR 97208-3623

Dear Mr. Larsen:

This letter is in response to the draft environmental statement on Managing Competing and Unwanted Vegetation. We have reviewed the draft EIS and concur with the USFS preferred alternatives B, D and E. Specifically we favor D as the most acceptable alternative. Our choice of this alternative is based on public and worker health issues, environmental concerns, socio-economic considerations and the need to maintain the National Forests as long term sustained yield forests.

The herbicide issue is a real public issue. More importantly is the issue of the National Forest Multiple Use concept. Maximizing timber harvest may provide short term economic incentives but will only reduce the potential multiple use of the Region's National Forests. Management alternatives that minimize costly timber management inputs and maximize natural processes will protect the National Forests for future generations.

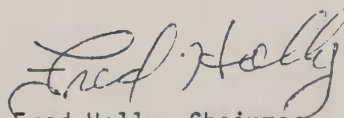
We are opposed to management alternatives that would abandon active forest management, such as alternative C. Man has made his mark on the Region's forests. We can not have a sustained yield National Forest and not actively manage the forests. We are also opposed to alternatives that would simply eliminate management tools such as herbicides in Alternative A or fire in Alternative F.

As a county with a large livestock industry, we see the National Forests as legitimate rangelands. We also see numerous tourist industries in the National Forests. Alternative D best fits our views of what the Region's National Forests should be. Our second preferred alternative is E and alternative B is our third choice.

Gary Larsen  
January 13, 1988  
Page TWO

We are concerned that the final alternative be something that National Forest users and neighboring landowners and local governments can live with. We would note that the noxious weed acreage estimates are erroneously low. We also point out that no landowner can simply choose not to control noxious weeds. Otherwise neighboring landowners will be besieged by weed seed, and valuable land resources will deteriorate.

Sincerely,

A handwritten signature in cursive script that reads "Fred Holly".

Fred Holly, Chairman  
Klickitat County Board of Commissioners





**Klickitat County**  
**Noxious Weed Control Board**

228 W. Main Street, Room 210  
Goldendale, Washington 98620

( 509 ) 773-5810

January 13, 1988

Jan Engert  
Vegetation Management Team  
USDA Forest Service, Pacific Northwest Region  
P. O. Box 3623  
Portland, OR 97208-3623

Dear Mrs. Engert:

After reviewing the draft EIS on Managing Competing and Unwanted Vegetation, the best alternative would be D. This alternative would enable the use of all available management tools but would anticipate problems rather than manage crises. It would also manage the Region's National Forests in a manner that would enhance natural processes rather than circumvent them. This would follow the multiple use concept more than any alternative.

Alternative C is unrealistic because it assumes that everything will be fine if nothing is done. That approach may work in some wilderness areas but would be unworkable in sustained yield multiple use forests. Alternative A and F are knee jerkers in that the primary issue is elimination of management tools such as herbicides and prescribed burning. Herbicides and smoke are health issues but like the gasoline engine they have useful applications.

Alternative G maximizes timber productivity but probably at the expense of other National Forest users present and future. It would probably meet the greatest public resistance. Alternative B is acceptable but seems to be a symptomatic approach using conventional vegetation management techniques. Alternative D on the other hand is potentially ecologically sound and at least recognizes forest and vegetation management as a dynamic ecosystem.

Alternative E would be a second choice. It falls between D and B. It addresses the herbicide issue in a publically acceptable manner. It also considers socio-economic and timber yield concerns.

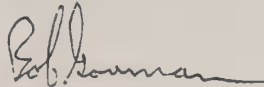
Jan Engert  
January 13, 1988  
Page TWO

Other specific issues in this draft EIS warrant addressing. The herbicide concerns were more intimately addressed than any other issue. This probably was necessary from a federal agency stand point. However, there needs to be recognition that herbicides are tools. The impact of herbicide use in alternative D would be minimal. It would be a very grave error for a public agency to prohibit any management tool. Such a decision could have serious, far reaching implications.

Another issue is control of noxious weeds. The National Forests have many thousands of acres of noxious weeds. It is a legal and societal obligation to control these weeds. Not only do they reduce seedling tree growth and range productivity but they also result in reduced native plant species diversity and wildlife health and habitat. Weeds such as knapweed and tansy ragwort are moving along roads, trails, landings and recreation sites. They are crowding out native plants and slowly starving wildlife.

The best control of weeds, brush and other unwanted vegetation is prevention or early treatment. We must become more adept at ecosystem management which is what alternative D addresses.

Sincerely,

  
Bob Gorman  
Weed Coordinator



Board of Commissioners  
Lake County  
STATE OF OREGON  
LAKEVIEW, OREGON 97630

ARTHUR H. SHEER    JAMES W. OGLE    JAMES H. GIPSON



January 8, 1988

Mr. Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, OR        97208

Dear Sir,

Thank you for the opportunity to respond to your Environmental Impact Statement regarding the control of unwanted vegetation in Washington and Oregon. The Lake County Board of Commissioners would like to go on record as supporting Alternative G.

Timber and agricultural products provide the economic base for Lake County. The moratorium on herbicide use continues to adversely affect both of these industries. The most obvious affect and the one your study is most concerned with is with reforestation practices. We are well aware of the slowed growth and higher mortality of seedlings caused by the competition for nutrients, water and sunlight by weeds and brush species.

The damage caused to adjoining and downstream agricultural practices is apparently less well-recognized. The State of Oregon has laws forbidding noxious weeds from being allowed to go to seed and not spreading to neighboring operations, but, that is exactly what the USFS has allowed to happen the past three years. Noxious weed infestations have been allowed to flourish and become a seed source for infesting neighboring lands. Hand control is prohibitively expensive, time consuming and ineffective.

While realizing there are trade-offs with all the Alternatives, we feel the economic benefits of Alternative G more than offsets any possible drawbacks for an Eastern Oregon county such as Lake. Herbicides have been in agricultural use here for decades, without any injuries, yet both agricul-

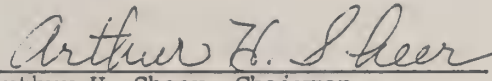
Mr. Gary Larsen  
Environmental Impact response  
Page 2

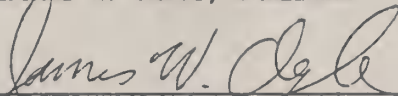
tural and timber workers receive injuries and even fatalities with depressing frequency while performing their routine tasks.

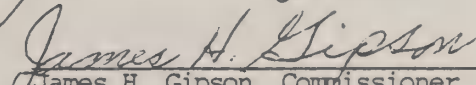
We feel the benefits to a rural Eastern Oregon county with the Adoption of Alternative G would exceed any possible negative affects.

Sincerely,

LAKE COUNTY BOARD OF COMMISSIONERS

  
Arthur H. Sheer, Chairman

  
James W. Ogle, Commissioner

  
James H. Gipson, Commissioner



I/B Public Participation  
and Consultation

001035

001035

001035

Weed Control Committee  
Lake County, Oregon

Vegetative Management Team  
Pacific Northwest Region  
P. O. Box 3623  
Portland, Oregon

Dear Sir:

We would like to express our support for Alternative G as a means of controlling unwanted vegetation on USFS lands.

The apparent lack of concern in addressing noxious weeds was rather striking to our committee since that is a major concern to us. The lack of noxious weed control by the Fremont Forest for the past three years has allowed a proliferation of such weeds as canada and musk thistle. While it is bad enough that these are allowed to flourish on public lands, when you realize these lands are also at the head of most of our watersheds the problem is compounded. This allows the USFS lands to become a seed source for spreading noxious weeds to all the private agricultural lands downstream.

A second point we would like to emphasize is that the EIS attempts to cover a large area with a single solution. Not only is the area quite diverse geographically it is also variable in climate, vegetation, population demographics and economic bases. I would imagine there are more differences between a forest in Eastern Oregon and one on the Olympic Peninsula than there are similarities.

At any rate, we would like to support alternative G which allows management of unwanted vegetation aggressively, with all necessary tools.

Thank you for the opportunity to respond.

Sincerely,

*Gene Lawson*

Gene Lawson  
Chairman

## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

Upon the recommendation of the Lincoln County Vegetation Management Advisory Board, the Lincoln County Board of Commissioners hereby notifies the United States Forest Service Pacific Northwest Region that their preferred alternative for the Draft Environmental Impact Statement on Managing Competing and Unwanted Vegetation is Alternative D.

Reasons cited by the vegetation management board for their decision to recommend Alternative D are:

- The lower risk of exposure to workers and the public to herbicides and smoke compared to the other alternatives.
- The increased emphasis on research and monitoring of vegetation management which will result in more effective and efficient vegetation management in the future.
- The ability of USFS Region 6 to use herbicides as a last resort.

Dated this 13th day of January, 1988.

LINCOLN COUNTY BOARD OF COMMISSIONERS

Norma McMillin  
Chairman

absent  
Commissioner

Albert M. Bryant  
Commissioner



**Marion County**  
**OREGON**

004905

**BOARD OF COMMISSIONERS**

February 9, 1988

(503) 588-5212

**BOARD OF  
COMMISSIONERS**  
Randall Franke  
Gary Heer  
Garry Kanz

**ADMINISTRATIVE  
OFFICER**  
Ken Roudybush

Jim Torrence, Regional Forester  
USDA Forest Service  
Pacific Northwest Region  
P.O. Box 3623  
Portland, Oregon 97208

Dear Mr. Torrence:

Thank you for the opportunity to review your latest publication "Managing Competing and Unwanted Vegetation: Draft Environmental Impact Statement (DEIS).

Insofar as your policies do impact the citizens of Marion County, we hope that our comments are valuable and will assist you in your decision making process.

The Marion County Board of Commissioners wish to endorse option "B", due to the following concerns.

We wish to emphasize that any reduction in timber production and subsequent ripple effects (personal income, school and road fund reductions) are not in the best interests of the citizens of our County.

It is also noted that our concerns with noxious weed control, sustained yield timber harvest, fire control, and the ongoing conservation efforts of the professional land manager are dependent upon a full complement of the elements of integrated pest management.

These efforts should and shall be the product of cooperative efforts of federal, state, and local agencies. We recognize the importance of having mutual goals and wish to emphasize our willingness to develop regional strategies that complement one another. Our experience in joint ventures such as the Marion County/Oregon Department of Agriculture/USFS contract for direction in inter-agency cooperation.

We would also like to share our optimism in developing regional strategies for such things as smoke management, water resources, noxious weeds, and other public concerns.

Sincerely,

BOARD OF COMMISSIONERS

*Garry Kanz*  
Chairman

*Gary Heer*  
Commissioner

*Randall Franke*  
Commissioner

cc: Tom Uppstad  
Bill Worcester

Marion County Courthouse • 100 High Street NE • Salem, Oregon 97301-3670

001012

# MORROW COUNTY WEED CONTROL

P.O. Box 127  
Heppner, OR 97836

Phone (503) 676-5452

December 15, 1987

Gary Larsen  
Vegetative Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
PO Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

Thank you for the opportunity to review the Draft Environmental Impact statement on Managing Competing and Unwanted Vegetation. I have reviewed the statement and find alternative D to be an effective and environmentally sound alternative.

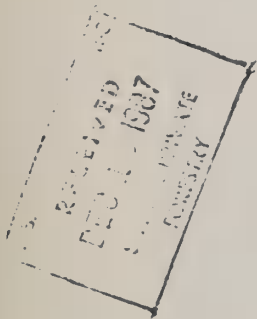
What is being done currently to manage the vegetation is not acceptable. The DEIS was well written with all major environmental concerns addressed.

I appreciate the opportunity to comment on the DEIS. Please contact me if I can be of other assistance.

Sincerely, -

*Jim Van Winkle*

Jim Van Winkle  
Morrow SWCD Manager/ Weed Control Supervisor



RECEIVED  
DEC 22 1987

RECEIVED  
DEC 22 1987



OKANOGAN COUNTY 001114  
NOXIOUS WEED CONTROL BOARD

JAN STIVERSON  
WEED SUPERVISOR

P.O. BOX 791  
OKANOGAN WA 98840

509/422-5408

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

February 3, 1988

Dear Mr. Larsen:

On behalf of the members of the Okanogan County Noxious Weed Control Board, I would like to offer the following comments regarding the Draft Environmental Impact Statement relating to Managing Competing and Unwanted Vegetation.

Of the alternatives preferred by the Forest Service, we feel that a combination of alternatives "B" and "D" would be best. From alternative "D", the concept that prevention should be the key of a vegetation management program should be added to the work plan outlined under alternative "B". Our Board feels strongly that prevention should be the key to a successful program, but at the same time feel it is important that all effective tools should be available to control competing and unwanted vegetation.

While prevention of noxious weeds is a sensible approach, it should not be considered an effective alternative in and of itself. The Forest Service should not adopt an alternative which will cause them to ignore the importance of noxious weed problems already existent on Forest Service lands. The damage caused by spread of noxious weeds since the 1984 injunction is one statistic that was not addressed in the DEIS. It is imperative that the Forest Service adopt an option which will allow them to make up for lost time.

The general terms "significant damage" and "herbicides available as a last option" mentioned throughout the summary need to be clarified and defined. If the definition of these terms is left to the interpretation of the individual Forests, we fear that it could lead to unnecessary conflict due to lack of an overall direction in terms of how the Forest Service implements their vegetation control program.

When comparing alternatives "B" and "D", it seems that the Forest Service would have a difficult task in proving that a projected loss of 246 million dollars in net value of measurable benefits and 3,100 fewer jobs would be in the best interest of the general

public. This is particularly true in Region 5 where forest related industries are an important cornerstone of the economy.

The strongest point to favor recommendation "B" is that "All effective and efficient techniques for managing competing and unwanted vegetation are available." If the Forest Service chooses an alternative where all techniques are not available, it effectively eliminates any chance of developing a true Integrated Pest Management philosophy. In many cases, using herbicides "as a last option" as outlined in alternative D would not be in the best interest of the Forest Service or the public.

Language of the overview of alternative "D" (p. II-13), cites a 30 to 60 per cent reduction in acreage treated, and a 40 to 70 per cent reduction in herbicide use (based on materials used in the 5 year period prior to the injunction). When the language used to describe Alternative "D" in the summary is examined (pp. Summary 12-13), it is stated that implementation of alternative "D" would result in "Minor reduction of effectiveness on problem sites," and states further that "effectiveness will be near current levels." It seems that the overview of alternative "D" and the summary language used to describe the same alternative contradict one another. How can a 30 to 60 per cent reduction in work be considered "minor?" Overall, alternative "D" places too much stock in the concept of prevention. Early action before competition and plant cover causes damage is simple common sense, and is in the best interest of all. However, the Forest Service should not chose an option that relies too heavily on prevention techniques. Prevention is simply one of many procedures which should be implemented to form a complete program.

The concern of "perceived risk" is, in the opinion of our Board, well addressed in the DEIS. The mitigation measures, particularly those developed if herbicide use is restored, are quite adequate. The fact that the mitigation measures will be implemented regardless of the alternative chosen shows a willingness on the part of the Forest Service to address the issue of perceived risk. It is important that the Forest Service keep the issue of perceived risk in perspective when choosing the alternative to be implemented. Perceived risk should be weighed against measurable public benefit. If herbicide use is eliminated to avoid perceived risk, the Forest Service will negate any chance of developing an integrated approach to vegetation control.

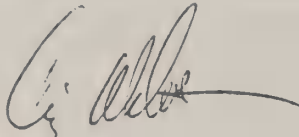
The Board encourages the Forest Service to consider preferred alternative "B" as the alternative of choice. We believe it is the only alternative which will allow the Forest Service to develop a complete Integrated Pest Management strategy. With the single exception that prevention should be made the key in whichever alternative chosen, alternative "B" is the most sensible approach.

In closing, we would like to commend the Forest Service on a job well done in the preparation of the DEIS. The Forest Service should be further commended in their efforts to involve the public in the decision making process. Ultimately, though, the decisions to be made will rest with the Forest Service. We encourage you to

# I/B Public Participation and Consultation

consider what is best for all owners of public lands.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Craig Webster', with a long horizontal flourish extending to the right.

Craig Webster, Chairman  
O.C.N.W.C.B.



# POLK COUNTY

## Board of Commissioners

POLK COUNTY COURTHOUSE ★ DALLAS, OREGON 97338-3174 ★ (503) 623-8173 ★ (503) 370-2500

### Commissioners

CRAIG HANNEMAN  
BENJ. F. MAGILL  
BILL HARLAND

RALPH HANLEY  
Administrative Officer

January 12, 1988

Gary Larsen  
Vegetation Management Group Leader  
U.S.D.A. Forest Service P.N. Region  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

Herbicides are the only practical and cost-effective means of controlling noxious weeds. I think Dr. Michel Newton, Professor of Forest Ecology at Oregon State University, hit the nail on the head when he said, "The 2,4,5-T component in Agent Orange led to 2,4,5-T itself being banned, in spite of a nearly flawless 30 years of application by both farmers, utilities and foresters. No case of adverse health effects in humans, livestock or wildlife were ever substantiated." He further states, "to my knowledge no court has blocked the use of herbicides on the basis of scientific evidence".

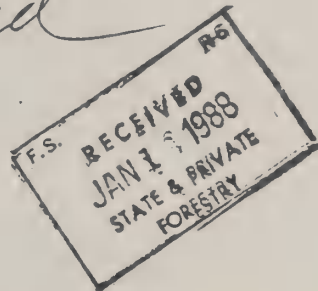
I believe that chemicals should be treated with respect and used judiciously, and that prudent use of chemicals remains the only practical and cost-effective means of controlling weeds.

We have read in the past that without agricultural chemicals, one out of every four Americans would starve to death for lack of food production; a very thought-provoking observation.

Sincerely,

*Bill Harland*  
Bill Harland  
Commissioner

BH/cmc/chemical





## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

The management of vegetation on the 92,000 acres of adjacent National Forest is of vital concern due to its impact on the local economy. Decisions made today affect this area for many years into the future. Other lands, especially the agricultural lands located downstream, are affected by Forest Service practices and management.

Alternatives should allow the following practices to be used for the management of vegetation to be accomplished effectively. The steep and brushy terrain in Tillamook County makes the following methods most practical and cost effective while protecting both the worker and the public.

-Herbicides are safe and cost effective. The mitigation measures do adequately address safe practices and the use will provide an important tool for vegetative management.

-The use of manual and mechanical methods is limited in the Coast Range Mountains due to the steep terrain.

-Biological control is used here primarily as a means of noxious weed control. It will take several more years for this method to become fully established.

-Controlled slash burning is essential for prevention of forest fires. The Tillamook burns of 1933, 39, 45, and 51 destroyed one of the largest and finest Old Growth forests in Oregon. Also greatly affected were large areas of wildlife habitat and the creation of large amounts of silt which eroded into the rivers and bays, damaging pasture lands and fish spawning beds.

We must use those Vegetative Management Practices which best prevent future events such as the ones we've already experienced. Controlled burning will help accomplish this.

Alternatives A, C, D, E, and F limit, or are ineffective, and therefore are not applicable as they limit or eliminate herbicides and prescribed burning.

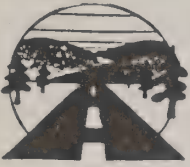
Only alternatives B and G allow proper management to be used.

In conclusion, the goals of Soil and Water Conservation, Noxious Weed Control, Environment, Wildlife habitat, Recreation and Timber Management would be best served by the adoption of Alternative G. This would best serve the needs of the public and assure proper vegetative management.

Name: Roger Pye, Supervisor, Tillamook County Weed Control, Tillamook County SWCD

Address: 2204 4th Street, Suite B, Tillamook, OR 97141

*Roger Pye*



## Umatilla County Department of Public Works

3920 Westgate • Pendleton, Oregon 97801 • 503-276-2962

**Commissioners**

Bill Hansell  
Glen Youngman  
Jeanne Hughes

**Director**

Daryl Harper

**Assistant Roadmaster**

Roy Thurman

**Weed Control Supervisor**

Mary K. Corp

October 20, 1987

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service  
PO Box 3623  
Portland, OR 97208

Dear Sir;

Thank you for the opportunity to review the Draft Environmental Impact Statement. In reviewing the material I have found Alternative E to be a worthy and acceptable plan.

Alternative E successfully deals with public perceived risks involved with the use of herbicides. We have found in our county program that it is a positive action for everyone to deal with these concerns.

Secondly, I believe the action of removing the use of certain chemicals that might be hazardous to the applicators using them to be a prudent and responsible action. I know from experience that other chemicals can be used successfully, although at some additional cost.

As a final note, Alternative E does have limited negative social and economical impact while a continuation of the present state of affairs will continue to have a substantial impact on our ability to stop the spread of noxious weeds in Umatilla County. The present state of affairs is in direct conflict with the primary goals of our county's weed control program.

In summary, Alternative E has addressed the issues in a responsible and feasible manner. I feel that with continued involvement of concerned citizens, myself included, that this plan offers a reasonable alternative for everyone.

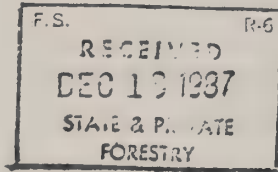
Sincerely,

*Mary K. Corp* PB  
Umatilla County Weed Control  
Mary K. Corp, Supervisor

Umatilla County Weed  
Control

UMATILLA COUNTY

001017



1229 S.E. Third  
PENDLETON, OREGON 97801  
December 16, 1987

Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service, Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Dear Sirs:

The Umatilla County Soil and Water Conservation District supports the implementation of Alternative B for managing competing and unwanted vegetation in the National Forests in Oregon and Washington.

We feel that competing and unwanted vegetation is a serious and increasing problem in our National Forest lands and that all effective and efficient techniques for management must be used for control. Any management program which reduces the available tools for control of noxious weeds is unacceptable. Adjacent landowners and users of federal lands have been seriously affected by weed problems originating on National Forest lands and are concerned about their control.

Also, we feel that when selecting the management programs to be used on National Forests, that consideration should be given to which alternative is best for each forest rather than selecting one plan to use on all of the forests in the region. Environmental conditions vary so greatly between the eastern and western parts of the region that management systems necessarily must be different.

We welcome the opportunity to review and respond to the draft EIS.

Sincerely,

*Tom Straughan*

Tom Straughan  
Chairman



UNION COUNTY  
County Court

JOHN J. HOWARD, County Judge  
MIKE CALDWELL, Commissioner  
MARIE C. LESTER, Commissioner

1100 "L" Avenue

La Grande, Oregon 97850

Phone: (503) 963-1001

January 14, 1988

Jim Torrence  
Regional Forester  
USDA Forest Service  
Pacific Northwest Region  
P. O. Box 3623  
Portland, Oregon 97208

Dear Mr. Torrence:

The Union County Court is responding to your request for public comment on the Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation. We are responding only from a local geographic perspective which obviously differs from other localities which have substantially different vegetative conditions within the Pacific Northwest Region.

We support the concept of a regional strategy for managing competing or unwanted vegetation consistent with the direction provided in applicable land and resource management plans. In addition, we generally support the practices and management approaches presented in Alternative D.

Specifically, Union County has had concern for and major involvement in noxious weed control on rural lands. The County has adopted an extensive program to pursue control of such weeds as star thistle, leafy spurge, and tansy ragwort. Previous efforts to coordinate with the Wallowa-Whitman National Forest have developed good working relations. Past efforts have focused on early preventive measures and practices which have the least impact to natural ecosystems and processes. Therefore, the County Court supports an alternative that gives general direction for vegetative control, but leaves specific management practices up to the forest planning process where site specific practices can be most effective.

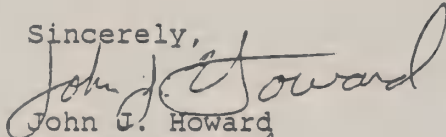


**I/B** Public Participation  
and Consultation

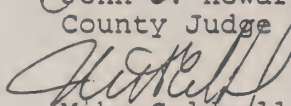
Jim Torrence  
January 14, 1988  
Page 2

Thank you for this opportunity to participate in the development  
of a recommended alternative for the Final EIS.

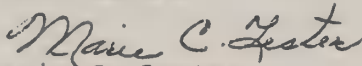
Sincerely,



John U. Howard  
County Judge



Mike Caldwell  
Commissioner



Marie C. Lester  
Commissioner

sb

Union County  
Wallowa Cnty. Court  
001113

WALLOWA COUNTY COURT

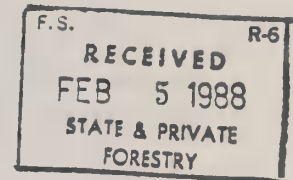
State of Oregon

Office of the Judge  
Phone: 503-426-3586  
P.O. Box E

Enterprise, Oregon 97828

January 29, 1988

Gary Larsen  
Vegetation Management Group Leader  
USDA - Forest Service  
Pacific Northwest Region  
PO Box 3623  
Portland, Oregon 97208



Re: Draft Environmental Impact  
Statement for Managing Competing  
and Unwanted Vegetation

Dear Mr. Larsen:

We, the Wallowa County Commissioners and the Wallowa County Extension Agent, wish to inform you of our comments concerning the Draft Environmental Impact Statement for Managing Competing and Unwanted Vegetation.

We believe that the most logical approach is Alternative G. After careful review of the Environmental Impact Study (EIS) and all appendices, we have concluded that Alternative G provides the greatest benefits to society and is both economically and environmentally sound. It should be recognized that ecology is simply the economics of nature and that contrary to what many believe, economics and ecology are compatible.

Of the alternatives presented, Alternative G will provide greater stability to the economy of the area than any other alternative without significant adverse environmental effects. The second choice is Alternative B for much the same reasons as outlined for Alternative G.

In our opinion, all other alternatives are unacceptable. Alternative A is unacceptable because:

(1) The Gramm-Rudman Act will cause a reduction in the available budget and the needed work simply will not be accomplished. It must be recognized that all government activities will be impacted with smaller budgets and limited resources.

(2) Under the current laws, regulations and policies, action at the first sign of damage is unrealistic. Court injunctions etc. are easily available to those wishing to prevent

Environmental Impact Statement Comments

January 29, 1988

Page 2

control of unwanted vegetation plus the lack of an adequate budget makes such an alternative impossible to implement in a meaningful and efficient manner. As a case in point, under the current court ruling, noxious weeds are rapidly spreading over thousands of acres and knapweed will destroy the big game winter ranges in Idaho, eastern Washington and eastern Oregon. The Snake River, Columbia and their tributaries east of the Cascades provide the ideal environment for knapweed and it already encompasses thousands of acres. The EIS indicates successful control of knapweed, Canada Thistle, Yellow Star Thistle, etc. with biological agents (insects); however, these successes have been very limited and do not prevent widespread damage.

(3) Alternative A does not protect adjacent landowners from injury because of spread of noxious weeds or unwanted vegetation from USFS lands to private lands. At some point in the future, the USFS and other government agencies will have to accept responsibility for the injury to adjacent landowners from unwanted vegetation, insects, disease, etc. where such pests have been neglected and are not properly controlled. At this time, whitetop, leafy spurge, Klamath weed and knapweed are all spreading from federal lands to private lands.

Alternative C is unacceptable because of the reasons listed for Alternative A, plus:

(1) It has the highest risk factor of all alternatives presented because of the increased incidence of wildfire. Wildfire cannot exist without fuel and air (oxygen). We can control the fuel supply through removal by mechanical means or burning, but we cannot control the available oxygen. Under Alternative C it is not a matter of whether the forest will burn, but only when

The recent fires in southwest Oregon clearly demonstrated the folly of such action. Not only were resources badly damaged, smoke and air pollution was the highest recorded for the area, people with respiratory problems were forced to stay inside, use oxygen or move from the area. In addition, lives were lost in combating the fire. Private property was lost or damaged.

(2) Noxious weed problems and other pest problems will be greatest for adjacent landowners using this alternative.

(3) Big game ranges will suffer from weed invasions and wildlife populations will decline. Both game species and predator

Environmental Impact Statement Comments  
January 29, 1988  
Page 3

populations will decline with the loss of winter forage. The loss of wildlife will be accompanied by loss of economic benefits and amenities. No consideration was given for these losses in the EIS or the appendices.

(4) Selecting Alternative C will give those who wish to disrupt forest management activities the greatest opportunity to do so through legal action etc.

(5) Alternative C will reduce production of both commodities and amenities on adjacent private lands. Unwanted vegetation can reduce crop production, both forages and field crops, suppress or prevent reforestation of land, and reduce growth of timber. Forage for big game and livestock will both be reduced. Since most big game winter on private lands, especially in severe winters, this will be particularly detrimental to them.

Page IV-64 Manual Methods

Statement "Manual techniques have the lowest potential for direct effects on wildlife" is questionable. Manual techniques require the presence of people, road travel and disturbance of wildlife. These activities can be detrimental on fawning or calving grounds, sagegrouse strutting areas, nesting areas, etc. Unwanted vegetation control efforts often must be conducted when wildlife are reproducing or breeding.

Page IV-65 Wildlife Conclusion

"The potential for impact to wildlife populations is proportional to the amount of acres proposed for treatment" is incorrect. Wildlife can be impacted to as great or greater extent by lack of treatment. Examples are decrease in species as forest canopies become closed. This generally decreases both the number of species and total population. Another example is lack of control on knapweed which has caused the loss of thousands of acres of wildlife habitat in Idaho.

Dense areas of juniper create some of the most severely eroded areas in the western United States. The sediment from these areas is particularly damaging to fisheries. These examples are from lack of treatment not because of treatment.

Page IV-75 Specific Lands and Areas

Paragraph - Statement "there are no foreseeable effects on prime farmland" is incorrect. Effects of unwanted vegetation



# I/B Public Participation and Consultation

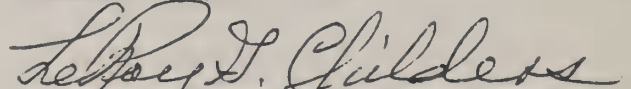
Environmental Impact Statement Comments  
January 29, 1988  
Page 4

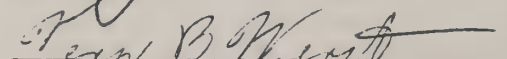
is a very serious problem. At the present time, because of lack of control of noxious weeds on public lands, farm and ranch operators are suffering large losses in forage and crop production. In addition, they are paying substantial sums to control weeds originating on public lands. Weed control districts throughout Oregon are frustrated by the lack of interest and control of noxious weeds on public lands by agency personnel.

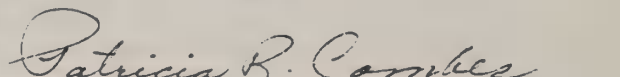
We ask for your support of our position.

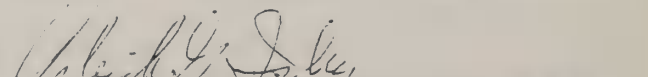
Sincerely yours,

WALLOWA COUNTY COURT

  
LeRoy G. Childers - County Judge

  
Vern B. Werst - Commissioner

  
Patricia R. Combes - Commissioner

  
Arleigh G. Isley - Extension Agent

## List of City Agency Letters

---

- 001008 City of Bend  
1375 NE Forbes Road  
Bend, OR 97701
- 001310 City of Cottage Grove  
400 Main street  
Cottage Grove, OR 97424  
Robert L. Sisson, P.E., Director of Public Works
- 000639 Portland Water Bureau  
1120 SW 5th Ave., 6th Floor  
Portland, OR 97204  
Bruce Niss
- 000089 City of Salem  
1410 20th St.S.E., Building 2  
Salem, OR 97302  
Daniel L. Bradley, Water/Wastewater Collection  
Superintendent
- 000794 City of Seattle  
City Light Department, City Light Bldg.  
1015 Third Avenue  
Seattle, WA 98104  
Lynn Davison, Director, Environmental Affairs Division
- 000861 Tacoma Public Utilities  
3628 South 35th Street, P O Box 11007  
Tacoma, WA 98411  
Leland D. Searles, Assistant Director

## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

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NOV 1 1990

### ALTERNATIVE CHOICE

The City of Bend Water Division could endorse alternative "D" if herbicide use was excluded from watershed application. Our understanding of the Safe Drinking Water Act seems to preclude the application of any volatile organic compounds which could enter either into ground or surface water. The detection limits and Federal rules concerning purity of drinking water would effectively limit use of herbicides.

Removal of vegative cover in any watershed will alter the erosional characteristics of the watershed, leading to possible increases of water temperature and turbidity. Surface water users in the Northwest are trying to comply with the Surface Water Treatment Rule and the host of new regulations in the Safe Drinking Water Act. Any increase in the level of suspended solids in the water could mean mandatory filtration at considerable cost. Removal of unwanted plant growth by burning will also result in increases of turbidity when the ash and carbon deposits wash into the stream channels. Your documents admit that knowledge in the area of effects of herbicide application and quality of water is limited.

Examination of your more than 700 pages of prose and tables showed no mention of the "inert ingredients" found in commercial herbicides. These ingredients can have more potential for adverse effects on life than the actual herbicide. These "inert" chemicals are mostly derived from petroleum products and provide solvents for membrane penetration. These compounds have longer "life" and are on the list for regulation. The listing of herbicide formulations seems to be a rather small and selective sample of those products currently on the market.

Name: CITY OF BEND

(OVER)

Address: 1375 NE FORBES ROAD, BEND, OREGON 97701

000100



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DEC 11 1987

FOREST SERVICE, USDA  
Vegetation Management Team  
Pacific Northwest Region  
P.O. Box 3623  
Portland, Oregon 97208

POSTAGE WILL BE PAID BY FOREST SERVICE, USDA

FIRST CLASS PERMIT NO. 10040 WASHINGTON, DC

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UNITED STATES

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### ENVIRONMENTAL MEASURES

There is no mention of the Safe Drinking Water Act in the documents, in fact, water and watersheds make up less than 4% of the documents. If watersheds truly make up 25% of the Forest Service lands, water quality is a issue that needs greater attention. Watersheds of the Pacific Northwest remain as the nation's best source of high quality water and public concern, real or perceived, should prevail in the productions of water for human use.





CITY OF  
COTTAGE  
GROVE

400 Main Street, Cottage Grove, Oregon 97424

February 15, 1988

OFFICE OF PUBLIC WORKS

U.S. Forest Service, USDA  
Vegetation Management Team  
Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Attn: Gary Larsen

RE: RESPONSE TO VEGETATION MANAGEMENT EIS - CITY OF COTTAGE GROVE

Dear Mr. Larsen:

Attached please find the response from the City of Cottage Grove to your Vegetation Management EIS. As noted in our response, Cottage Grove's primary interest is one of watershed management control and protection. Any questions regarding Cottage Grove's response should be directed to myself. My telephone number is 942-3349.

Very truly yours,

A handwritten signature in black ink, reading "Robert L. Sisson". The signature is written in a cursive, flowing style.

Robert L. Sisson, P.E.  
Director of Public Works

RLS/cet  
Attachment

c.c. Forest Service File

RESPONSE TO FOREST SERVICE EIS FOR MANAGING  
COMPETING AND UNWANTED VEGETATION

2/12/88

The City of Cottage Grove has a vested interest in the Forest Service's vegetation control program because approx. 95% (55 Sq. Miles) of our municipal watershed lies on the Umpqua National Forest. We have worked closely with our local forest personnel because activities on the forest affect our water quality. We have 3 primary areas of concern and they are:

1. Chemical contamination
2. Erosion
3. Biological contamination

Chemical Contamination: This is an issue that the City has been concerned about even before the court injunction of 1984. We are concerned that toxic chemicals can be introduced into the watershed and ultimately end up in our City's water system. Our concerns stem from limited human and lab animal test data that is available for all of the active ingredients for all 16 herbicides proposed for possible use. We do have fears that long-term experience will show yet-to-be-determined adverse effects after it is too late. We also question the toxicology of each herbicide's inert ingredients and carriers. Sufficient information does not appear to be available in the EIS nor has the manufacturers made it available because it is "proprietary". Drinking water standards have not been determined for any of the 16 proposed herbicides. It is not realistic for any water purveyor or any public body to promote the use of a chemical in its watershed without an established drinking water standard with which to gauge acceptable ranges of concentrations.

When an herbicide is used in any area, control of that chemical is limited to natural means once it is released. Of particular concern is the use of aerial applications where control due to drift is very limited. Watercourses are very susceptible to contamination with all methods of application since they collect and provide for the drainage of the entire tributary areas.

Associated with chemical usage is the public's emotional concerns which cannot be ignored. The public who consumes drinking water from a chemically herbicide treated watershed readily identifies with past, adverse health problems caused by similar herbicide use. We realize that fear should not be the basis whether to use or not use a vegetation control tool; however, realistically it must be a consideration from the mental health perspective. The emotional aspect is particularly important when reviewing all of the carcinogenicity data. The conclusion drawn from the EIS is that insufficient data is available to determine whether any of the proposed herbicides and particularly those proposed for major use is or is not a carcinogen. Without sufficient data, we are telling the approx. 10,000 people who use the City of Cottage Grove's water that "we may be placing a carcinogen in the water supply."

From a municipal watershed perspective we think that it is wise to prohibit "all" chemical herbicide usage for vegetation control within its boundaries. This applies to vegetation control for silvicultural and roadside stabilization and maintenance purposes.

Erosion: Raw water quality from a surface watershed is directly related to the erosion that occurs within the watershed. The watershed management plan for the City of Cottage Grove's watershed provides for timber harvest and associated road building. Both contribute significantly to the degradation of water quality by introducing turbidity from erosion into the runoff water. In order to minimize erosion from both of these activities, it is necessary to prevent as much ground disturbance as possible and to establish and maintain a ground cover. From a vegetation control perspective fire can be very detrimental to erosion if more than very light surface fuels are burned. It would be our suggestion from a water quality standpoint to manage silviculture areas to minimize ground disturbance and limit the areas to be burned to an absolute minimum. Additionally, it would be our suggestion to establish vegetation on cut and fill slopes as soon as possible after they are exposed. Vegetation control on these slopes should be restricted to mechanical means and then only to prevent damage and to provide for safety.

Biological Contamination: The EIS suggests that vegetation may be controlled in certain areas through grazing. All warm blooded mammals can carry bacteria, viruses and other agents in their digestive tracts which are potentially disease causing. There is concern today that just the mammals that naturally exist within a watershed pose potential sources for these disease-carrying agents. At times it becomes essential to remove those mammals from their natural watershed habitat in order to protect the health of the customers who consume the water. An example of this is the need to remove beavers from the proximity of water system intakes since the beaver is known to carry the giardia lamblia cyst which is responsible for outbreaks of enterocolitis, a potentially life-threatening illness. The introduction of disease-carrying animals for vegetation control compounds the pre-existing natural potential.

General Summary: It is our opinion that whichever alternative or combination of alternatives is selected for vegetation control, municipal watersheds must be given separate and special consideration due to their sensitivity to the public health. Cottage Grove's opinion of "special consideration" is previously outlined in this response narrative. The Forest Service Alternative "E" comes nearest to meeting that goal but would require further modifications/restrictions to fully comply with that goal.

000639

## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

DEC 08 1991

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Additional economic impacts could result if a municipality is required to construct a Water Treatment Plant as a result of herbicide application or increased human activity in its Municipal Watershed.

Additional mitigation measures should thus include:

- 1) Ban on use of pesticides in Municipal Watersheds.
- 2) Required use of portable sanitation facilities for all personnel working in Municipal Watersheds.

Name: Bruce Niss Bruce Niss

Address: Portland Water Bureau  
1120 SW 5th Ave, 6th floor  
Portland, OR 97204



000089

DEC 18 1991

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## Response Form

To be most helpful, we need your concise and thoughtful comments on:

- ... The alternatives; telling us which ones you support, or changes that could be made.
- ... Our scientific information and analysis.
- ... The measures we have proposed to protect the environment.

The City of Salem, Oregon, derives 99% of its water supply from its watershed. Over 75% of the watershed is forest land managed by the Forest Service (USFS) in the Willamette National Forest, more specifically in the Detroit Ranger District.

The City of Salem is vitally concerned about the use of any chemicals, herbicides, or pesticides in its watershed.

We recommend no aerial spraying.

All herbicide and pesticide spraying should be strictly regulated and controlled.

The quality and quantity of all herbicides and pesticides entering the watershed should be rigorously accounted for.

The City of Salem should be notified of each use of chemical sprays, including herbicides and pesticides and specifying: date and location of use, chemical specifications, MSDS, method of application, quantity used, and future plans for follow up spraying if any.

Name: Donal J. Bradley WATER/WASTEWATER COLLECTION SUPERINTENDENT

Address: 1410 - 20<sup>th</sup> ST. SE / DUG 2 CITY OF SALEM

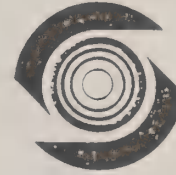
SALEM, OREGON 97302

(503) 363-3320

000794

Your  
Seattle  
City Light

Randall W. Hardy, Superintendent  
Charles Royer, Mayor



January 20, 1988

Gary Larsen, Group Leader  
Vegetation Management Team  
Pacific Northwest Region  
P.O. Box 3623  
Portland, OR 97208

Dear Mr. Larsen:

Forest Service Draft Environmental Impact Statement (DEIS) on  
Managing Competing and Unwanted Vegetation

Seattle City Light staff have reviewed the Forest Service DEIS on managing unwanted vegetation and have several comments. We are interested in the selection of a vegetation management to the extent that it affects areas in, or bordering, our right-of-way (Seattle City Light maintains over 100 miles of right-of-way extending from the Skagit River to the City of Seattle). We have several general and specific comments:

- In response to concern about risks to workers, the public and the environment, Seattle City Light recently adopted an integrated vegetation management approach to right-of-way vegetation maintenance, a policy which seeks to eliminate or reduce the use of herbicides where feasible. We therefore support alternative D, which is consistent with an integrated vegetation management approach. A number of factors make this alternative a strong one and one which we can enthusiastically support. These include:
  - emphasis on a prevention strategy over a corrective one,
  - emphasis on early public involvement,
  - encouraging site specific management,
  - all control methods are available for vegetation control,
  - commitment to monitoring programs, which should provide information to develop more effective and efficient programs, and

"An Equal Employment Opportunity - Affirmative Action Employer"

City of Seattle - City Light Department, City Light Building, 1015 Third Avenue, Seattle, Washington 98104 (206) 625-3000

Gary Larsen  
Page 2  
January 20, 1988

- attempts to minimize adverse environmental effects by emphasizing natural processes and reducing herbicide use and burning.
- We would like to point to one specific instance where the use of biological methods to control noxious weeds may be especially beneficial to both the Forest Service and Seattle City Light. The DEIS mentions current research on biological control of tansy ragwort (a noxious weed), using the cinnabar moth. City Light is currently conducting an experiment to assess the feasibility of biological control of tansy ragwort using two insects, the cinnabar moth and the tansy flea beetle, on a site near Darrington near the Mt. Baker-Snoqualmie National Forest.

Our results to date are only preliminary; however, the probability of establishing insect populations appears high and the effectiveness of these two insects in controlling tansy ragwort has been previously demonstrated in research in other areas. A cooperative approach in this area could be mutually beneficial. The introduction of cinnabar moths and tansy flea beetles on Forest Service property near this site would enhance the development of insect populations and possibly lead to reduced use of herbicides on both properties. We would be happy to provide background information on this project, to share our results with the Forest Service, and to discuss possible joint efforts.

- Regardless of which vegetation management technique is eventually chosen, we encourage the Forest Service to select and use herbicides cautiously. We note that in alternative E, certain herbicides are restricted, presumably due to a high worker risk. Selection of herbicides should be made strictly based on the health and environmental effects of the herbicides. If an herbicide has been demonstrated to hold potential health risks in one alternative, we suggest that it be eliminated from each alternative. Similarly, burning of vegetation treated with herbicides is prohibited only in alternative E. The potential human health risk from this practice is not discussed in detail in this document, and it should be restricted for all of the listed alternatives. Finally, in addition to analyzing new herbicides,

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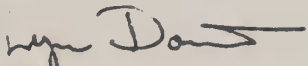
BBH 31 KAL

Gary Larsen  
Page 3  
January 20, 1988

we encourage the Forest Service to keep abreast of current research on herbicides already in use on Forest Service lands.

Thank you for the opportunity to review and comment on this program DEIS. If you have any questions on these comments, please contact Lynn Helbrecht of my staff at (206)-684-3692.

Sincerely,



Lynn Davison, Director  
Environmental Affairs Division

LH:er

cc: Karen Murphy, Western Washington Toxics Coalition  
Toxics Advisory Group



E. COATES, DIRECTOR  
3628 South 35th Street  
P.O. Box 11007  
Tacoma, Washington 98411  
(206) 383-2471

000861

DIVISIONS  
Light  
Water  
Belt Line

January 21, 1988

Mr. Gary Larsen  
Vegetation Management Group Leader  
USDA Forest Service  
Pacific Northwest Region  
P. O. Box 3623  
Portland, Oregon 97208

Dear Mr. Larsen:

Re: VEGETATION MANAGEMENT PROGRAM (1950)

All of our operating divisions have reviewed the subject program.

The Light Division comments that the Alternatives "B", "D", and "E" favored by the Forest Service are all compatible with the Utility's goals and objectives.

The Water Division wishes to comment as follows. The City of Tacoma, Water Division supplies an average of 72 million gallons per day of potable water to about one-quarter of a million people in Tacoma and Pierce and King Counties. The primary source of this water is the Green River, located in eastern King County. The watershed lands comprise an estimated 151,242 acres, out of which the U.S. Forest Service manages 40,834 acres or 27 percent. The impact of U.S. Forest Service management activities, in particular managing competing and unwanted vegetation, is significant on the Green River Watershed water quality and public health. Due to recent public concerns regarding herbicide chronic effects and carcinogenicity, the City's policy has been to allow the use of only herbicides that are rapidly biodegraded. When mechanical control is used, the potential effects of having greater numbers of marginally trained workers in the watershed poses additional risk to public and workers' health. The City observes all herbicide applications in the watershed and monitors the water quality before and after the application. Therefore, the City appreciates seeing in all of the alternatives proposed that the public is to be informed and involved in vegetation management. Of the seven alternatives proposed in the Draft EIS "Managing Competing and Unwanted Vegetation", the Alternative "E" is the Water Division's preferred plan. The Water Division feels this alternative would provide the most protection to the City's surface water supply and not unreasonably impact the region's social and economic output from the forest.

Committed to Service



TACOMA PUBLIC UTILITIES

Mr. Gary Larsen  
Page 2  
January 21, 1988

The Belt Line Division prefers Alternative "D" for vegetation management.

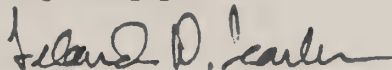
The Grounds Maintenance Section (which provides vegetation management service for the operating divisions as required), General Services Division, has the following comments. Alternative "B" seems to best meet the requirements of protecting the environment. While herbicides do present some hazards to human health and the environment, the Forest Service's studies and others indicate no method of silvaculture to be totally without risk. The environmental protections undertaken in this plan are far-reaching and seem to address the concerns in this area adequately. In the proper conduct of operations to enhance public lands, all available tools should be used. Herbicides properly and safely used can be a valuable addition to any integrated vegetation management program.

Also, we are interested in remaining on your mailing list. Please send updates to:

Property Management  
Tacoma Public Utilities  
P. O. Box 11007  
Tacoma, WA 98411-2596

Thank you.

Very truly yours,



Leland D. Searles  
Assistant Director



## List of Indian Council Letters

---

- 000413 Lummi Indian Business Council  
2616 Kwina Road  
Bellingham, WA 98226-9298  
Merle Jefferson, Lummi Fisheries Department
- 000722 Point No Point Treaty Council  
7850 NE Little Boston Road  
Kingston, WA 98346  
Stephen C. Ralph, Habitat Management Biologist



LUMMI INDIAN BUSINESS COUNCIL

2616 KWINA RD. • BELLINGHAM, WASHINGTON 98226-9298 • (206) 734-8180

DEPARTMENT: \_\_\_\_\_

EXT. \_\_\_\_\_

LARRY G. KINLEY  
Chairman

WILLIAM E. JONES  
Vice Chairman

GERALD I. JAMES  
Treasurer

SAMUEL M. CAGEY  
Secretary

CLARENCE BOB  
Councilman

RONALD F. FINKBONNER  
Councilman

DAVID H. JEFFERSON  
Councilman

ERNEST J. JEFFERSON  
Councilman

EDWARD L. JONES  
Councilman

RANDY J. KINLEY  
Councilman

VERNON A. LANE  
Councilman

USDA Forest Service  
P.O. Box 3623  
Portland, OR 97208

January 12, 1988

The purpose of this letter is to provide comments on the Vegetative Management EIS for USFS Region 6 from the Lummi Tribal Fisheries Department.

We are concerned about the potential for adverse effects on the environment (including salmon, shellfish, and water quality) from widespread herbicide use.

We favor a vegetative control program which is based on the following concepts:

1. The Integrated Pest Management approach which minimizes herbicide use and favors biological or cultural methods,
2. A preventive approach which seeks to avoid the creation of situations which require vegetation management or herbicide use,
3. Emphasis on methods with minimal environmental effects and use of herbicides only as a last resort,
4. Involvement of the public (including tribes) in development of vegetative management plans.

Since Alternative D appears to incorporate many of the above principles, we urge you to adopt alternative D as the preferred alternative for Forest Service vegetation control. However we suggest that it be amended as necessary to incorporate the all of the principles listed above.

Thank you for the opportunity to comment.

Sincerely,

Merle Jefferson  
Lummi Fisheries Dept.



## Point No Point Treaty Council

Port Gamble Klallam • Lower Elwha Klallam • Jamestown Klallam • Skokomish

January 11, 1988

James Torrence, Regional Forester  
USDA- Forest Service  
Pacific Northwest Region (R-6)  
P.O. Box 3623  
Portland, OR 97208

Re: Comments on the alternatives considered in the Vegetation  
Management EIS, prepared by Region 6 of the USFS

Dear Mr. Torrence,

The Point No Point Treaty Council is the fisheries management agency formed by a consortium of four tribes whose ancestors signed the Treaty of Point No Point (1855) with the US government. A large portion of the ceded lands, comprising about half of the Olympic Peninsula in Washington, is now under the administration of the Olympic National Forest. These and adjacent lands support treaty reserved resources such as fish, wildlife, and cultural values, that are vital to the maintenance and continuance of tribal sovereignty. Consequently, land management decisions by the Forest Service can have a profound and lasting effect on these reserved resources. We are writing to express our reaction to the three alternatives preferred by the USFS for management of what foresters refer to as competing vegetation, as described in the EIS noted above.

We do not favor unrestricted and widespread herbicide application on federal forest lands as a matter of policy. Of the three alternatives presented, we favor alternative D because it comes closest to institutionalizing an integrated pest management approach which is consistent with the multiple resource management mandate of the Forest Service. It stresses prevention and avoidance of situations where control of "competing" vegetation becomes an overriding need. It formalizes a process where the decision to control competing vegetation is deliberate, and allows for more choices among alternative methods to be selected as the preferred tool. Selection of treatment methods would follow a ranking procedure which has as its criteria, the treatment method with the least impact upon the ecosystem.

There are, however, some ambiguities with this alternative as described in the EIS, that need more definition. The concept



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of prevention, through the use of methods that reduce the conditions favoring the growth of unwanted vegetation, should be incorporated into harvest plans and sale layouts. This, of course, happens at the district level.

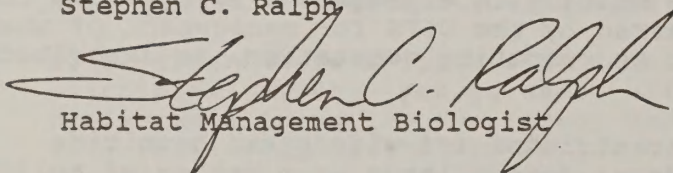
Research should be an important component in developing these techniques and a better understanding the site characteristics and harvest methods that reduce the likelihood of the growth of undesirable plants. The dynamics of ecosystem functioning seem to be an area needing further attention by the Forest Service as the multiple resource management agency.

The USFS must demonstrate a rigorous pursuit of alternative prevention and control methods. This should result in a decrease in the amount of chemical herbicides used as compared to the level of use before the imposition of the moratorium. Detailed records of the amount, location and timing of herbicide might be a useful element to include in this accounting.

If, as a last resort, herbicides are used, a monitoring demonstration program could be instituted to track the fate of any herbicides used near a select fish bearing stream or streams serving as water supply to local communities. We favor the complete elimination of 2,4-D and amitrole from use by the Forest Service.

Thank you for the opportunity to comment.

Stephen C. Ralph



Habitat Management Biologist



